L1 effects on L2 Comprehension, Production and Acceptability Judgments: Evidence from English and Albanian Learners of Greek

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PhD Thesis
The University of Edinburgh
2006

Declaration

I hereby declare that this thesis has been composed by myself, and that this work is my own and has not been submitted for any other degree or professional qualification.

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Acknowledgements

I would like to thank my two supervisors, Antonella Sorace and Ellen Bard, for their guidance and constant feedback that had made this thesis possible. Although I spent most of the time of my studies in Athens, I had the feeling that they were always by my side, ready to answer questions, to provide valuable criticism and encouragement.

Eddie Dubourg taught me how to use Psyscope, offered long-distance technical support, and made me feel that there is always a solution, no matter how 'stubborn' computers might be. I am grateful for all that. I would also like to thank all the technical staff of the Department too, especially Cedric, Morag, Mike and Steven.

I am grateful to the people who participated in the experiments and spent hours and energy in order to provide me the data on which this thesis is based. I thank them all for their genuine interest and their effort to do their best, despite the demanding nature of the tasks they were asked to perform.

I would also like to thank the Faculty of Arts of the University of Edinburgh, for the Standard Studentship that has made this study possible.

I am also grateful to Panayotis Kontos for his practical support and the nice office I was allocated in order to run the experiments. More importantly, I thank him for his moral support throughout the years of my studies.

I find it most difficult to thank Despina Markopoulou-Hila, the person who guided me while I was still an undergraduate student; it was thanks to her inspiration too that I decided to work on second language acquisition.

My colleagues at the University of Athens have also helped me find the precious research participants and I thank them for that. I also thank the Registry of the Centre of Teaching Greek as a Foreign Language, Hristina Miliara and Dionisis Strubakos, for the many ways of supporting my work.

If life is impossible without friends, doing a thesis is unthinkable without them. The problem is I do not know where to start from, so I will follow a chronological order: many thanks to Natasha Antonopoulou, for being my 'point of reference' for many years, for her humour, her kindness and love. Special thanks to Ineke Mennen for her friendship, her positive way of thinking, for our discussions that always helped me clarify my thoughts. Many thanks to Petto Forger too, for the sweetest orange-juices I was offered in my life! I also thank Ineke and Petto for their constant encouragement and the warmth I feel in their home.

Now, how can I possibly thank Dora Alexopoulou? With Dora, a coffee-break can become a source of inspiration, and a long-distance phone-call one of the most relaxing

and sincere discussions. And how can I thank my Korean sister, Kook-Hee Gil? Despite the distance, Kook-Hee is as close as my heart and has proved that friends are always there. Many thanks to George Tsoulas too, for making me believe that I could finish the thesis faster than I imagined (it was not true, but it worked!) and also for all the 'lumberjack' laughs.

Hristina Miliara, Dimitra Papakonstadinou, Aphrodite Dafermou and Stavroula Fylachtou have also offered me their love and support, and shared my happy moments, disappointments and panic attacks; I really don't think I could have made it without them! I would also like to thank Vassiliki Koutrafouri, Eddie Dubourg, Nikiforos Karamanis and Evangelia Plemenou for several dancing nights, Chinese lunches, talks over PhD anxieties and nice excursions.

My deepest thanks and all my love to Kyprianos Kiriakarakos for his understanding and support, but especially for the happiness he brought into my life with his smile, his love for life, and his heart of gold.

I would also like to thank my family, my sister Katerina, my cousins Lela and Anna Sirivli. Especially Lela has been more than a cousin, and even more than a friend.

My gratitude and love to the person who gave me my mother tongue, my mother Kiki, who challenged me to take the most daring steps in my life and supported me in every possible way.

Finally, this thesis would not have been possible without the love of my father, Triantafillos, who taught me how to find the meanings of unknown words (in dictionaries and in real life), to love poetry and to settle for nothing less than my dreams. Although he left for heaven many years ago, I could always hear his advice and I am sure that right now he can hear me thanking him.

Abstract

The aim of this thesis is to investigate the role of the native language (L1) in the development of a second/ foreign language (L2). More specifically, the issues addressed in the thesis concern the influence of L1structure on L2 grammar, the language levels that the L1 could affect, the use of L1 strategies during L2 processing, and the prerequisites that would allow for L1 effects to take place. Based on the recognition that competence is only indirectly mirrored in performance, we assume that the L1 effect might be manifested in different ways depending on the task that L2 speakers are performing, and we set off to provide a broad picture of L2 performance by presenting comprehension, production and acceptability judgments data from L2 speakers with different L1s and at different developmental stages.

The grammatical phenomenon under investigation is word order and the languages in contact are Greek, which is the target language, English and Albanian, which are the L1s. Greek and Albanian are free-word order languages with rich inflection, as opposed to English, which has a strict word order and weak agreement features. L2 speakers were either at the elementary or at the advanced level; the level of L2 proficiency was determined by means of a placement test used at the University of Athens. The general research hypothesis is that L2 learners might have realised the structure of the L2 and changed (in the case of English learners of Greek) the values of the agreement features, but they might be unable to put their knowledge into use, due to factors such as difficulties with the morphological markers, incomplete lexical knowledge and the processing load that certain tasks might elevate.

The same native and non-native speakers of Greek (total number = 90) participated in three experiments that were run in different order among participants. The first experiment reported in the thesis is an on-line sentence interpretation task; experimental material consisted ambiguous and unambiguous utterances that had to be matched to one of the two pictures that appeared each time on a computer screen. Utterances are ambiguous in Greek when the NPs that could function as Subjects and Objects are not clearly marked for case (due to syncretism between Nominative and Accusative forms of neuter nouns and articles). The second experiment investigates word order use during speech production: participants were asked to tell the difference between two pictures by using specific verbs, which were also used in the comprehension experiment. The third experiment investigates the relevant acceptability of the six word orders that are possible

in Greek, by means of Magnitude Estimation of Linguistic Acceptability technique (Bard, Sorace & Robertson 1996).

Data from the three experiments confirm the hypothesis that the L1 effect is manifested differently during different tasks. The fact that none of the L2 groups differ from the native controls in terms of acceptability judgments allows us to assume that L2 speakers might have similar representations to native speakers of Greek. Nevertheless, during production, English learners, both at the elementary and the advanced level, produced significantly more SVO and significantly fewer VSO and OclVS utterances than native speakers; moreover, English speakers' performance did not differ from Albanian speakers', who also used fewer VSO sentences than native speakers of Greek. Conversely, during comprehension, English elementary learners use similar interpretation strategies to native speakers of Greek, whereas English advanced learners prefer an L1 strategy for the interpretation of verb-initial ambiguous sentences, the result being a non-nativelike performance of the latter group. Albanian elementary and advanced learners also differ from the native controls during comprehension, as they do not seem to have a specific interpretation strategy. Regarding overt case marking and verbal morphology, Albanian and English learners are equally accurate during production and comprehension; moreover, the two Language groups do not differ in terms of reaction times during the tasks of comprehension and acceptability judgments.

The conclusion we draw from these results is that L1 influence is not always apparent during performance, either at the representational or at the processing level. The perceived similarity between the L1 and the L2 might influence transfer of L1 knowledge and L1 strategies. The task that L2 speakers perform and the level of L2 proficiency are two additional factors that might determine the strength of the L1 effect. At least with respect to the phenomenon under investigation, it also seems plausible that the differences between native and non-native groups could be due to difficulties with L2 morphological realisations of abstract features and incomplete L2 lexical knowledge rather than to different syntactic representations.

List of abbreviations

AaG:	Albanian advanced (speaker of) Greek
ACC/Acc:	Accusative
AeG:	Albanian elementary (speaker of) Greek
agr:	agreement
AM:	Argument Marking
C/CM:	Competence/Control Model
CLI:	Cross-linguistic Influence
CM:	Competition Model
def:	definite
EaG:	English advanced (speaker of) Greek
EeG:	English elementary (speaker of) Greek
F:	Focus
FT(/FA):	Full Transfer (/Full Access)
IL:	Interlanguage
L1 :	native language
L2:	second/ foreign language
MELA:	Magnitude Estimation of Linguistic Acceptability
MT:	Minimal Trees
N(P):	Noun (Phrase)
NL:	native language
NOM/Nom:	Nominative
nomark :	neither the Subject nor the Object are marked for case
O-animate:	animate Object
O-inanimate:	inanimate Object
Omark:	Object is marked for case & Subject is unmarked
OS:	Object – Subject
OSV:	Object – Subject –Verb
O:	Object
OA:	Object Animacy
OVS:	Object –Verb– Subject
RTs:	Reaction Times
Smark:	Object is unmarked for case & Subject is marked
S:	Subject
SOmark:	both Object & Subject are marked for case
SOV:	Subject – Object– Verb
SVO:	Subject –Verb– Object
T:	Topic
TL:	target language
tns:	tense
UG:	Universal Grammar
V(P):	Verb (Phrase)
V2:	Verb second
VF:	Valueless Features
VO:	Verb –Object
VOS:	Verb– Object –Subject
VS:	Verb –Subject
VSO:	Verb– Subject –Object
VSO-Smark:	Verb – Subject (marked for case) –Object (unmarked for case)
VSO-Omark:	Verb – Subject (unmarked for case) –Object (marked for case)
WO :	Word Order

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Chapter 1

Introduction

This thesis investigates the role of the native language (L1) during the acquisition of a foreign language (L2).

Recent research on (interpretive) syntactic and interface knowledge (e.g. Hopp 2004; Sorace 2003), as well as between syntactic functions and morphological realizations (e.g. Goad & White 2004; Lardiere 1998, 2000) lead, more or less directly, to the conclusion that a certain type of divergent performance might not be due to incomplete L2 knowledge and that the influence of the L1 is neither uniform across linguistic levels nor equally extended to all aspects of L2 knowledge. From a processing point of view, differences in the performance of L2 speakers have indicated that the use of L1 processing procedures is not an indisputable fact and that the reasons behind certain strategic preferences might be more complicated than originally thought of.

Based on such conclusions, as well as on assumptions about the possible influence of L1 knowledge and processing mechanisms on L2 development (e.g. Meisel 2000), and on evidence that specific strategies are used during certain tasks (e.g. Kilborn 1994; Kail & Diakogiorgi 1995), we aim at depicting a more complete picture of L2 performance by presenting L2 data elicited by means of different tasks.

More specifically, we investigate comprehension, production and acceptability judgments of L2 speakers who belong to different developmental levels and come from different L1 backgrounds. This way, we will be able to investigate whether the L1 effect is manifested in distinctive ways during these three tasks, due to different strategies deployed in each case, and whether the level of L2 proficiency also determines the strength of the effect. In order to discover factors that may affect L2 performance and take them into account before arriving to any general conclusions about the role of the L1, we take an interdisciplinary approach, and examine L1 influence at the representational as well as at the processing level.

At this point a clarification has to be made: although we attempt to take a more interdisciplinary look to the phenomenon under investigation and we use some

psycholinguistic techniques in our experiments, we do not, however, attempt to contribute directly to models of language processing.

Rather, starting from the Chomskyan distinction between performance and competence, we investigate the ways in which the L1 influence can be mirrored on aspects of L2 performance. We do not question the nature of the L2 grammar, but we are going to argue, along with many others in the past (e.g. Chomsky 1965; Sharwood-Smith 1986), that the L2 grammar is only indirectly reflected on L2 performance, and we should therefore be more cautious when trying to tear apart the one from the other, in order to draw some conclusions about the possible influences of the L1 on each side of the coin: we take this coin to be L2 performance and its two sides L2 knowledge and L2 use. Behind this performance metaphor lies the hypothesis that the underlying knowledge might be the same among L2 speakers, but the same speakers might differ when it comes to processing preferences, which could obscure our understanding of L2 competence.

We are also concerned with the reasons that 'lead' to the use of L1 strategies and the reasons that could 'restrict' L1 influence at a representational level. We argue that, since L2 acquisition starts when L2 learners get exposed to L2 input, we can only approach the L1-in-L2 issue through its interaction with the linguistic data. In other words, learners' L1 can influence their hypotheses about the L2 structure, as well as their (unconscious) decisions about the strategies that they will deploy, only when their L1-based hypotheses can be verified by the L2 data: learners will not adopt a certain L1 analysis or strategy for an L2 for which they have enough evidence that it is totally different from their L1 (cf. Kellerman 1979, 1983). Hence, even if the L1 is the initial state of L2 acquisition, L2 speakers who are learning a dissimilar (at least with respect to some syntactic phenomena) language from their own will have to reform their L1-based hypotheses in order to be able to accommodate incoming data (cf. Schwartz & Sprouse 1994, 1996 vs. Epstein *et al* 1996, 1998; see also the relevant discussion in White 2003).

In summary, the specific aim of the thesis is to draw a more complete picture of the L1-in-L2 issue by presenting data from different tasks and provide evidence that L1 influence is a 'conditional' phenomenon, since it occurs under specific circumstances and when certain conditions are satisfied.

1.1. Organisation of the thesis

In order to achieve these aims, we proceed as follows: In Chapter 2 we discuss hypotheses and models that directly address the L1-in-L2 issue, along with the most relevant research findings on Word Order (WO) acquisition that inspired the research reported in this thesis. In Chapter 3, we examine the competence-performance distinction in the L2 context. We also briefly present hypotheses that have to do with the processes of comprehension, production and judgment of (L2) sentences, in order to make specific assumptions about the possible factors that might influence the outcomes of these different tasks.

Having presented the background of this research, we move to Chapter 4, where we formulate the general research hypotheses. We explain why the specific phenomenon and the specific language groups were chosen. The languages involved in this study, i.e. Greek (target language), Albanian and English, are then briefly described. In this Chapter we also give general information about the participants, especially the L2 learners, which provide some evidence that speakers from the two language groups are matched; this would allow us to claim that any possible differences in performance of the two L2 groups will not be caused by certain extralinguistic factors.

Chapters 5, 6 and 7 report the three experiments (i.e., comprehension, production and acceptability judgments) for each of which specific hypotheses of L1 transfer are tested. The order in which experiments are presented has nothing to do with the order in which they were conducted, since the same L1 and L2 speakers participated in all three experiments, and the order of presentation differed among participants. It represents, however, the order that speakers get in contact with the language: first speakers get exposed to L2 input, which they start parsing; then they start responding, i.e. they start talking, or 'judging' the L2 input.

Thus, in Chapter 5 we start with the Comprehension experiment. The main hypotheses that are tested have to do with the use of certain L1 strategies during L2 processing and the influence of L1 characteristics on the interpretation of (un)ambiguous utterances. In Chapter 6 we discuss the Production experiment, which explores whether differences found in L2 learners' production data can be explained on the basis of L1 grammatical influence. In Chapter 7 we present the Acceptability Judgments experiment, for which we preferred Magnitude Estimation of Linguistic Acceptability (Bard, Sorace & Robertson 1996) technique, which is more appropriate to measure gradient linguistic phenomena. By means of this task we investigate whether L2 learners

accept structures that are impossible in their L1 as well as sentences that they do not produce and/or find it difficult to understand.

In Chapter 8 we make the 'synthesis' of our findings, by putting together all statistically significant results from the three experiments, and discuss the different ways in which L1 influence is manifested during the three tasks. We also discuss individual performance by focusing on certain variables (such as morphological accuracy, WO flexibility during production, response times during comprehension and acceptability judgment tasks), and we test for correlations across tasks.

In Chapter 9 we draw the general conclusions, we discuss the implications of this research for L2 acquisition theories and some possibilities for future research.

1.2. Terminology

Until now, the perceptive reader might have noticed that the term *transfer* has been avoided, as we believe that some clarifications need to be made before we start using it in the thesis. Although the term had been rejected in the past, on the ground that it reminds more of behavioristic approaches (see Odlin 1986: 25-6 for a discussion), we prefer it to other terms such as *mother tongue* (Corder 1983) or *cross-linguistic influence* (Kellerman & Sharwood-Smith 1986) for two reasons: first, we believe that the behavioristic sense in it has long been faded away; second, it can be used as a much broader term to include all prior knowledge of a language (not only the L1, cf. Schachter 1992) as well as all prior strategies developed for some other language(s).

In this thesis, however, we will restrict its sense and use it in order to refer to *the process of using* aspects of L1 knowledge and L1 strategies during L2 performance. We will reserve the term *L1 influence* to denote the more general, and at a more abstract level, *effect* of the L1 on L2 knowledge and processing preferences.

With respect to the terms *L2 acquisition* and *L2 development*, we are going to use them in a rather loose interchangeability, although we take the latter to refer to real-time learning which stresses the characteristic of progressive change in the course of the former (cf. McLaughlin 1988: 93). As for the distinction between *acquisition* and *learning*, we are far from following Krashen's (1981) proposal and, despite the fact that L2 participants had received or were still receiving formal instruction, we refer to the process as L2 acquisition and to the participants as L2 learners.

Chapter 2

Literature Review

The role of the L1 in a second language context has been debated for a long time, (according to Gass 1996: 317, for over 200 years). In the early debate, the role of the L1 in L2 acquisition was related to the question of using the L1 in instructed L2 acquisition. From that point until the current (psycho)linguistic assumptions regarding the L1 effect either on mental representations and/or on L2 processing, it has been a long way.

The aim of this chapter is not to present the history of transfer[1], but to discuss the more influential theories and a representative sample of L2 studies, which could help us understand why we still have not reached a consensus about the exact role of the L1 during L2 development. For this reason, we will proceed as follows: after a bried introduction about the phenomenon under investigation, i.e. Word Order (WO), we discuss assumptions about L1 influence at the representational level by reviewing studies that investigate the acquisition of WO by adult L2 speakers. We then discuss findings from studies investigating transfer of L1 strategies during L2 comprehension of different WO patterns.

We conclude that both approaches, i.e. those that examine L1 influence on L2 grammar and those that investigate L1 transfer of processing strategies, have shed some light on the L1-in-L2 issue. However, there still remain a lot of questions about the exact role of L1 and the way we analyze the L2 data, which brings us back to the distinction between competence and performance that needs to be revisited.

2.1. Approaching Word Order (WO)

As Odlin (1989:85) notes, WO has been one of the most intensively studied syntactic properties in linguistics, and there are numerous studies in L2 acquisition research that investigated L2 WO patterns. Indeed, WO, being a language-specific as

[1] for the 'history of transfer' see Odlin (1989); Kellerman & Sharwood-Smith (1986); Ringbom (1987); Larsen-Freeman & Long (1991); Gass & Selinker (1992); Ellis (1994); Gass (1996).

well as an interphase phenomenon, can be approached from different angles and allows for experimental manipulations – reasons that could perhaps explain why it has been one of the most preferred research topics.

From a generative perspective, L2 acqisition of WO has been studied in order for some light to be shed on issues concerning L2 speakers' mental representations. Within this framework, the most prominent question has been L2 learners' access to UG, and the role of the L1 has been mainly examined in relation to this question and the possibility (or not) for parameter re-setting.

Moreover, since WO is an interphase phenomenon, its study could also involve morphology, phonology, discourse and semantics. Theoretical as well as developmental linguistics have proposed certain theories and have provided data concerning such interactions. To give but a few examples regarding L2 acquisition, researchers investigated whether morphological markers and syntactic structures are aquired independently, or whether the one is a pre-requisit for the other (see, e.g., Lardiere 1998, 2000); L2 acquisition of WO and case marking falls into the scope of the syntax-morphology interface (c.f., e.g., Meisel 1986 for bilingual acquisition; Mangana 1997 for adult L2 acquisition; for more detailed discussions on syntax-morphology interphace in L2, see, e.g., Beck (ed.) 1998). Moreover, WO variability has been associated to 'syntactic as well as informational-structural and semantic factors', and research findings indicated that learners' differences may result from their knowledge of interpretive interface aspects of optional WOs (Hopp 2004: 67).

With respect to discourse-semantic factors, one major issue has been whether and how *topic* and *comment* influence the decoding and encoding of L2 speech (see Odlin 1989 for a general discussion and several examples; also Kellerman 1984: 112-5).

From a psycholinguistic perspective, L2 production and comprehension of different WO patterns could provide some answers to questions concerning the processing procedures that are used in the L2. Learners' preferences for certain WOs, as well as the strategies that they used in order to parse the L2 input, are the major topics that have been explored from that perspective (see section 2.2.2). The issue of L2 processing, however, has also been examined in relation to mental representation; for example, Juffs (1998) examined the effects of L1 argument structure on L2 morphosyntactic processing, and claimed that processing ability is not necessarily the same as knowledge of representation of argument structure (see also section 3.2.2.3).

It has been made clear, we believe, from this brief discussion, that 'WO' might mean different things to the linguists and to the pshycholinguists, but can also been viewed from a more interdisciplinary perspective. It is, therefore, important to state from which angle this phenomenon is approached each time, and with what goal in mind.

2.2. Studies on the acquisition of L2 WO

In this section, we discuss some studies that directly address the L1-in-L2 issue, which could be divided into competence and processing approaches: the former investigate L1 transfer of grammatical knowledge within the UG framework; the latter examine the interpretation of WO patterns mainly within the Competition Model[1]. In both types of studies, conflicting evidence is presented with respect to the L1-in-L2 issue. Both approaches also seem to suffer from more or less important drawbacks in their assumptions and/or on the way they interpret the L2 data.

Since WO is defined as 'the arrangement of words in a sentence' (Richards *et al.* 1996: 408), studies on the Verb placement, the pro-drop parameter and adjacency have tackled the issue of WO acquisition too. But as we shall see in section 2.2.1, there is a gap in the UG literature that has to do with the acquisition of WO patterns: studies on the acquisition of Verb-placement in German focused on V2 and SOV order in subordinate clauses, and ignored the acquisition of other orders that are also grammatical in German, like OVS and OSV.

Conversely, research within the CM was more 'holistic' as it was concerned with the interpretation of different WO patterns (Verb- initial/ final/ middle constructions), but suffers from far more serious problems than the UG approaches, as we shall see in section 2.2.2.1.

2.2.1. UG approaches

Since we are not concerned with the syntactic theories proposed by each of the following approaches, and in order to avoid repeating the same well-known and well-reviewed stories (e.g. Braidi 1999; Hawkins 2001; White 1989, 2000, 2003), we will not discuss the syntactic analyses assumed in each study; instead, we will look at the

[1] for a survey on other WO studies that directly addressed the issue of transfer see Odlin (1989: 85-97).

elicitation procedures they used, focus on their conclusions and discuss their contribution to the question of L1 transfer[1].

2.2.1.1. Pro-drop and VS order

White (1986) investigated whether Spanish, (Italian; only 2 participants) and French speakers of English transfer the L1 value of the pro-drop parameter. Data were elicited by means of a grammaticality judgment test and a written question formation task. White found that Spanish speakers accepted subjectless sentences significantly more than French speakers of English, an indication that Spanish learners have transferred their L1 setting with respect to this value. It was also argued that Spanish learners were able to reset the parameter since accuracy improved with increasing level of L2 proficiency. On the other hand, VS sentences were equally rejected by Spanish and French speakers, a finding that contradicts the hypothesis that L2 learners initially apply the L1 value of the parameter. White (1989) assumes that this discrepancy might relate to issues within linguistic theory, and claims that VS order might be irrelevant to the pro-drop parameter.

Tsimpli & Roussou (1991) also looked at null subjects, VS order, and *that*-extraction; their informants were 13 Greek-English bilinguals, 6 at the intermediate level and 7 at post-intermediate level of L2 proficiency. Data were elicited by means of a grammaticality judgment task and a translation task. Tsimpli & Roussou found that sentences with null subjects or VS order were rejected in the first task. Moreover, null subjects were correctly translated by referential pronouns and Greek VS sentences were translated as SV in English. The authors, however, claimed that the apparent 'success' with personal pronouns was the result of a misanalysis: Greek speakers of English treat personal pronouns as agreement markers. This assumption has a consequence for VS order: when referential pronouns are absent, *pro* cannot be identified and VS order become impossible (see also Hawkins 2001 for more details on their analysis). This way Tsimpli & Roussou also account for the L2 learners' poor performance in the case of null expletive subjects and with *that*-trace constructions, which were allowed in both tasks, and the acceptance of dislocated structures that are 'unnatural' in English, e.g. (1)

(1) *John, he broke the plates.*

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[1] for L2 research on anaphora, Subjacency and Empty Category Principle, see White (1989).

It seems that within this approach, restructuring the L2 grammar does not involve parameter resetting but misanalysis of the L2 data in an L1-way. In that respect, Tsimpli & Roussou' s proposal, as well as similar claims, amount to say that there is no such thing as 'L2 grammar building': instead, the L1 grammar is the one and only available which is adapted to accommodate the L2 input, the logical conclusion being that ultimate attainment in the L2 can never be native-like, since there is no 'L2 grammar' as such (cf. the CM in section 2.2.2.1 and the assumption that L2 is 'parasitic' on L1; cf. section 3.2). A question that arises from similar claims is whether it is always possible for L2 learners to accommodate the L2 input using the functional categories of their L1 only; the prediction seems to work with Subject pronouns, but it is not obvious that this could work with other phenomena too. A further observation is that sentences like (1) are characterized as 'unnatural' and not as ungrammatical. Since such constructions are possible –though marginal– in the L2 and in the L1, L2 learners of the intermediate level have no reason to reject them. The fact that the L1 influence becomes more apparent in constructions where the L1 and the L2 bare some resemblance has been assumed by several linguists (e.g., Kellernman 1979, 1983; Adiv 1984; Eckman 1985; Trévise 1986; Wode 1981).

In any case, participants in White's and Tsimpli & Roussou' s studies were French, Spanish and Greek speakers of English, who rejected VS sentences. If Tsimpli & Roussou are right about the misanalysis of the L2 data, then we must assume that French and Spanish speakers do the same, so that their French or Spanish grammar can accommodate the L2 input (for more on omission of Subjects (and Objects) see White 1989, Hawkins 2001).

2.2.1.2. Verb placement

Clahsen & Muysken (1986) looked at the acquisition of German Verb placement by naturalistic adult L2 speakers from different backgrounds (Italian, Spanish, Portuguese, Turkish) and compared L2 production data with production data from children who acquired German as their L1. They accounted for the differences found between L1 and L2 production by assuming that

> 'children possess learning capacities specific to language, particularly the capacity to postulate an abstract underling order, related to the surface order through 'move alpha', whereas adults use acquisition strategies which may be derived from principles of information processing and general problem solving strategies' (ibid.: 111).

They identified four developmental stages that all L2 learners went through, regardless of their L1: at the first stage, learners produce only utterances in SVO order. At the second stage, finite verbs are being distinguished from non-finite, which are placed at the end of main clauses, but still no evidence for V2 is found. At the third stage, finite verbs are placed in second position; at the fourth stage L2 learners start using V-final order in subordinate clauses. The justification of the developmental sequence found in L2 German is also based on processing accounts: three processing strategies are driving L2 acquisition:

a) the Canonical Order Strategy, which dictates direct mappings between underling structure and surface form
b) the Initialization/Finalization Strategy, which allows movements from sentence initial to sentence final position and the reverse, and
c) the Subordinate Clause Strategy, which 'prohibits any sort of permutation in embeddings' (Clahsen 1988: 58; cf. Pienemann 1984).

This hypothesis could be seen as a refinement of Clahsen's 1984 processing analysis and the assumption that structures involving complex transformations require high degrees of processing capacities, and are therefore more difficult to acquire (see also White 1991 for a discussion on Clahsen's proposals).

Clahsen & Muysken's position with respect to UG-access in L2 has been changed: in their 1989 paper, they claim that UG principles are available via the L1, as opposed to their previous claims that adults, who 'do no have access to the principles of universal grammar in the same way as children', create a rule system 'which is not definable in linguistic theory' (Clahsen & Muysken 1986: 116).

In reply to their first assumption about the 'unnatural L2 grammar', **duPlessis et al. (1987)** adopted a different analysis of the German structure that could accommodate the L2 data reported by Clahsen & Muysken, and concluded that L2 learners are capable of resetting parameters. Their claim that L2 learners at the third stage of their development switch to head-final Verb Phrases opposes Clahsen & Myusken's claim that L2 speakers' underling order is SVO at all the developmental stages they identified (see also White 2000 for more references about arguments against 'wild' grammars). Also **Schwartz & Tomaselli (1990)** claimed that duPlessis et al. 's analysis of German WO is also problematic and proposed a different one. Different interpretations are indeed possible, depending on the theory and the analysis one adopts (cf. White 1989: 105). The question, nevertheless, that most UG approaches seem to disregard, despite the nature of

their data, is whether speech production directly mirrors the underling grammar of the L2 speakers, and whether the underling order can be assumed on the basis of speech production only. Thus, the fact that a certain WO is adopted during production could be mirroring a certain processing preference whereas L2 speakers' grammar might be more complex than we can infer on the basis of their production.

Evidence from a different task that investigated the same phenomenon comes from **Hulk (1991)**, who used a grammaticality judgment task with a two-point scale (bad vs. good) in order to investigate the acquisition of French by Dutch speakers at different developmental stages. According to Hulk, results verified Schwartz & Tomaselli's predictions, and showed that, during L2 development, L2 speakers adopt grammars that are neither L1- nor L2-like, but are UG constrained and possible in other languages. Similar conclusions were reached by **Schwartz & Sprouse (1994)**, who analyzed production data from a longitudinal study with one Turkish-German bilingual, Cevdet, whose utterances gave rise to the Full Transfer/ Full Access (FT/FA) Model. According to Schwartz & Sprouse, Cevdet's initial production of utterances in SVO order was the result of the operation of certain mechanisms that are related to the Turkish clause analysis. It was also assumed that there possibly was a stage at which V-final utterances were produced, but because the L1 system was insufficient to assign a representation to input utterances, it was restructured on the basis of UG-licensed options. In subsequent developmental levels, the learner adds new mechanisms for Nominative case checking, not found in Turkish, which also affect his WO production. Schwartz & Sprouse argue that knowing what the earlier states are in Interlanguage (LI) is essential in interpreting later stages. The authors propose several possible reasons for why the final state is not uniform across learners: the influence of L1 grammar, the problem of relinquishing 'wrong' hypotheses and the Determinacy Problem, caused by the fact that L2 data may not be sufficient to force retraction from the L1 system. All these reasons make L1 and L2 acquisition quite different, but although L1 and L2 knowledge might not be identical, it is of the same type. Despite the acknowledgement that the end state 'is not known' (ibid.: 359) and the optimistic assumption that the different L1 and L2 systems are of the same kind, the prediction that follows from Schwartz & Sprouse' s proposal is that the end point of L2 acquisition will *not* be native-like. In fact, Han (2004) finds in their claims a justification for fossilization: the *de facto* L1 influence is the main cause of L2 speakers' failure to reach native-like competence, since all the reasons proposed by

Schwartz & Sprouse that account for L2 divergence are related to the L1: wrong hypotheses are motivated by the L1, and L2 data are screened by L1 influence.

Vainikka & Young-Scholten (1994, 1996) tested a different hypothesis, namely that L2 speakers 'only make use of their native language to the extent that they transfer their VP' (1996a: 13). Korean and Turkish speakers of German (SOV languages) performed production tasks (e.g. picture description, description of an action) and a grammaticality judgment task, and they were compared to Italian- and Spanish-German data. Vainikka & Young-Scholten found that at the earliest stage of the L2 development Korean- and Turkish-German bilinguals produced OV utterances 98% of the time, whereas Italian- and Spanish-German bilinguals produced OV utterances only 19% of the time. Vainikka & Young-Scholten claim that the learners' L1 does not influence the development of IP, the functional projection that is added to the L2 structure later on, which is driven solely by the interaction of X'-Theory with the target language input (ibid.: 7) They follow Radford (1990) in assuming that the stages that correspond to the gradually developing tree are 'grammatical stages', i.e. idealized grammars that successively replace each other; the grammar of an earlier stage competes with the grammar of the next stage, and this is why signs of both stages are sometimes observed in the same data (ibid.: 13). This way, Vainikka & Young-Scholten try to account for 'problematic' patterns, e.g. when learners place Verbs both before Objects and clause-finally, despite the fact that their L1 is left-headed. According to Meisel (2000: 196) this switch from left-headed to head-final VP between the two developmental stage remains mysterious. He also makes the point that linear orientation of grammatical heads should be a property of functional categories if it is to be considered a parameterized option; thus, 'in the absence of functional categories, transfer of the position of the verb cannot be accounted for in this framework' (ibid.).

2.2.1.3. Verbs and adverbs

White (1989b) investigated the acquisition of the adjacency condition. Following Chomsky, she assumed that there is a parameter with two values, [+strict adjacency] and [-strict adjacency]. In configurational languages like English the value is [+strict adjacency] and only a manner adjunct can intervene between the Verb and the Object (cf. Stowell 1981). Using different tasks (close test, multiple choice judgment and paced judgment test), White compared the performance of English-French (EF) and French-English (FE) bilinguals, because the two languages differ in terms of the value of the

parameter. The results of the FE group support the transfer hypothesis, since many of the learners assume English to be like French in allowing adjacency violations (White 1989: 153). Even the more advanced learners found it difficult to recognize that English does not allow adjacency violations. Similar findings have been reported by Shenn (1980) who found that advanced L2 speakers of English produced utterances in which the adjacency condition is violated; in a subsequent study that used a preference task, White (1990/1991) also argues that French-English speakers accept sentences like (2) below, as a result of transfer of the strong feature value from French.

(2) *Mary watches often television*

(3) *Mary often watches television*

Eubank (1993, 1994, 1996) offers in fact a 'middle ground' (1994a: 384) between the FT/FA and the MT hypotheses. According to the Valuless Features (VF) hypothesis, both lexical and functional categories are transferred from the L1, but the parameterized values of features in functional heads are not: L2 learners will set the appropriate values based on the L2 input. In order to support empirically this claim, Eubank re-analyzed data from ZISA project (Clahsen et al. 1983) and specifically the production of one Spanish-German bilingual, and tried to interpret the optionality of inversion that has been observed. Based on Wexler' s analysis for similar phenomena in L1 development, Eubank argues that this optionality 'comes about because strong <+agr> requires verb raising while <-agr> allows only for lowering. When features of tense do appear, LF-interpretation of <+tns> comes into play: the only feature that does not conflict with <+tns> in the <+tns> complex at LF is <+agr>' (Eubank 1996b: 384). This analysis predicts that the abstract agreement and tense are not transferred from the L1 to the L2 (initial stage) but are acquired, like all other lexically-driven information, on the basis of morphological properties of the L2.

2.2.1.4. Getting away from parameters

Although different in their assumptions, the FT/FA, the VF and the MT hypotheses have a common characteristic: either against or for transfer of functional categories, they all assume the transferability of parameter settings and the possibility of changing the L1 settings during L2 development (cf. Meisel 2000: 197). A totally different position is held by **Müller (1998)**, who argues for UG access without parameter setting. Müller's study is based on the analysis of longitudinal data of an Italian-German bilingual, Bruno,

also taken from the ZISA corpus. She identifies two major stages in Bruno's development: during the first phase, functional categories are present and according to the L1 structure, i.e. Bruno assumes a head-initial IP for German (contrary to MT hypothesis and as argued in Müller 1993, 1997), but there are no subordinate clauses in which the finite Verb is in clause-final position. In this stage the position of the Verb in relation to Objects is acquired; non-target VO orders disappear at the end of this phase. What is more important is the observation that 'the correct OV order is determined for each V separately' (1998: 126). During the second phase, Bruno acquires Verb placement of finite Verbs in subordinate clauses in an item-by-item fashion depending on the type of element that introduces the clauses (ibid.: 128). In none of the two phases is the V2 pattern absent from the data, whereas in both phases there are some instances of the non-target XSV pattern.

Müller observes that structures are found in the data that correspond neither to the L1 not to the L2 but are possible in other V2 languages, possibly because of the 'misleading input' (ibid.: 152). In any case, Bruno knows what natural languages look like, and he can thus assume analyses of the input that are UG-consistent. The analysis Müller adopts for Bruno's intermediate grammars is similar to the one proposed by Schwartz & Sprouse 1994, but departs from their approach in that it assumes that particular properties of the Verb play an important role in L2 acquisition. She concludes that L2 learners have access to UG and to parameterized options that are not instantiated in the L1. Nevertheless, L1 and L2 acquisition are not identical, since in the latter case learners already posses a grammar which is associated with L1 processing capacities that cannot be 'switched off' if the L2 input contains processable data' (ibid.: 118). A further difference is that there is no radical shift in L2 development, which is a gradual learning process, and involves a lot of lexical acquisition which is not dependent on broader linguistic categories (ibid.: 117, 153).

In order to answer the question of how a learner can realize 'whether the L2 grammar has an underlying SVO order with no constituent movement, or a surface SVO order, derived from a different underling order' (ibid.: 151), Müller assumes that learners observe the following 'conservative' strategy:

> (5) 'If you find a surface structure of the type of your L1 in the L2 input, then assume a grammatical analysis in terms of your L1' (ibid.).

This strategy predicts that learners will transfer their L1 OV order only if they observe OV orders in the L2 input. This approach could be considered as *partial*

transfer[1], since transfer can occur only as result of the interaction between the L1 and the L2 input. In this respect, Müller's approach is the only one, within UG, that takes the linguistic data into serious consideration.

Moreover, following Haider (1993)[2], Müller adopts a different position of UG: UG is a cognitive co-processor, a program for a program, where parameters are merely a descriptive category and as such they are not responsible for language acquisition. The UG potential, just like the visual system, 'is activated whenever data appear that can be processed by the linguistic processor' (ibid.: 117). This idea of UG translates the strategy in (5) as follows:

> (6) 'If the cognitive processor is presented with data that (superficially) resemble the NL, then the processor is inevitably activated –just as other processors (acoustic or optic) are activated by the sheer presence of processable data– and the L2 input data are processed in terms of NL routines' (Müller 1998: 151).

In other words, L2 learners are inevitably driven to the L1 grammar in cases of superficial resemblance of the two languages, since they cannot switch off their L1 processing capacities if the input contains processable data.

It is not made, clear, however, whether and how L2 learners can overcome this dominance of the L1 processing capacities. The strong position would assume that they never do, and this could be used as an explanation of differences between L2 and native grammars. On the contrary, if we take the 'conservative' strategy in (5) not as an absolute but a default option that can be abandoned in the presence of other relative input, then we can assume that the L1 processor will be 'suppressed' as the L2 processor will take over (cf. section 3.2).

Müller's approach is processing-oriented in a sense, since it assumes a certain way in which L2 input is analyzed, and given that L2 input is also the determinant factor that interacts with L1 structure in order for L1 transfer of grammatical analysis to occur. Transfer is not *de facto* possible or impossible, as it is assumed in the other UG approaches. On the other hand, it is totally different from processing approaches in that it is not concerned with the transferability of L1 processing strategies, neither does it investigate the parsing procedures followed in L2.

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[1] Müller argues that it is not equivalent to *transfer* (p. 151) but we assume that it is not equivalent to *full transfer*.

[2] although she acknowledges, following Hohenberger (1995:86), that Haider's terminology 'floats between behaviorism and dynamic models'.

2.2.2. Processing L2 WO

Most of the above UG approaches treat production data as if they were not affected by processing factors, and they assume a rather one-to-one relation between performance data and grammatical competence.

Conversely, **Jordens (1986: 91)** claims that 'since interlanguage output data are performance data, they can only be accounted for in terms of a model of language production'. He adopts a model of sentence production, namely Incremental Procedural Grammar (Kempen & Hoenkamp 1982), according which sentences are generated in an incremental or piecemeal way: the first part of the sentence might be expressed before any other decisions about the structure of the rest of the sentence are made. Sentence production is lexically-driven and content-oriented. These characteristics are bound to create problems, common in L1 and L2 production, in areas in which wide-scope grammatical rules have to be applied (e.g. passive sentences).

With respect to L2 production, Jordens assumes that transfer of L1 production processes will lead to particular kinds of errors that will be attested in native speakers' production too. He looks at Dutch-German production in order to test this hypothesis, and he first considers sentences in which the Subject NP is not functioning as Topic. The prediction is that morphological errors will occur in L2 German because the Subject function will be transferred from L1 Dutch. The data from two corpora of 'spontaneous, written sentences' (ibid.: 96) in L1 Dutch and Dutch-German seem to verify this assumption. He notes that incorrect Nominatives appear in sentences with topicalized Objects, and Accusatives are incorrectly used with Subjects that appear in sentence-initial position. These case errors are related, according to Jordens, to L1 production rules: 'the relative independent production of both the topic and the focus part of the sentence lead to case marking in L2 German which is based on relations of conceptual structure' (ibid.: 105).

Although it could be possible that errors on morphological marking could be due to transfer of L1 functions, it is not an uncontroversial point the assumption on which Jordens bases his analysis, i.e. the hypothesis that the beginning of an utterance may be produced while the speaker has no further plans for the remaining structure, neither can it be verified by the kind of data he presents. With respect to the model itself he espouses, Branigan (1996: 38) argues that it eschews the competence/ performance distinction, as 'knowledge of the language and process are intertwined'. From this respect, an approach like Jordens' has, in a way, to follow the assumption that learners'

output reflects both their syntax and the syntactic procedures in a rather inseparable way. More importantly, similar types of errors have been attested in other L1-L2 contexts (e.g. Greek by L2 speakers from various L1 backgrounds –like Russian, German, French, Spanish, English, etc; Mangana 1997), where Nominative and Accusative assignment could not be related to topicalization and transfer from L1.

2.2.2.1. Exploring cues

The processing of L2 WO has been investigated by a great number of studies that in their majority have shown that L2 learners deploy L1 processing strategies while interpreting L2 sentences. A lot of this research has been done within the framework of the Competition Model (CM) and researchers were mainly interested in exploring cue strength, by testing the cues that were assumed to affect sentence interpretation, i.e. WO, animacy, and case inflection. In what follows we briefly present some of the more important and relevant findings, focusing on the variable that our study also examines, namely WO, and we then discuss the drawback of this approach. But before we move to this discussion, let us summarize some of the basic assumptions of the extended version of the CM that have to do with transfer[1].

Transfer in the CM

The extended version of the CM (MacWhinney 2002) attempts to describe the actual process of language learning by looking at the role of nine learning mechanisms, one of which is transfer. Transfer however is not just one of the nine mechanisms, but it also 'has a major secondary impact on the use of all the other mechanisms' (ibid.: 52). Transfer is based on two other learning mechanisms, namely pattern detection and predictive association, and is a pervasive phenomenon in L2 learning. Learners must make particular use of two learning mechanisms, resonance and error detection, in order to 'overcome' transfer. They also need to develop input strategies, which will help them maximize their L2 input. More input could help L2 learners to switch from word-based learning, which is the result of heavy reliance on transfer, to utterance-based learning, which is preferred during L1 acquisition.

With respect to the acquisition of L2 grammar, it is assumed that the L2 syntactic system is initially 'parasitic' on L1, like L2 phonology and lexicon. The initial setting of L2 cue weights is based on the weights in L1. 'Over time, these settings change in the

[1] For the 'basics' on the CM, see Bates & MacWhinney (1981, 1982, 1987, 1989); for an extension of the CM see MacWhinney (2002).

direction of the native speakers' settings for L2' (ibid.: 47). However, L2 learning involves more than simple returning of these weights, since, sometimes, L2 learners have to acquire entirely new conceptual or discourse distinctions, not applicable in the L1, but obligatory in the L2. Even in such cases, i.e. when new categories have to be acquired, the L2 learner will attempt to transfer from the L1. The only level that is not subject to transfer is morphosyntax, the exception being closely related languages (e.g. French – Spanish, where the L2 learner can transfer the gender assignment system of one language to the other).

L1 influence on L2 cue strength

Bates and MacWhinney (1981) carried out a pilot study using a sentence interpretation task with native speakers of German and Italian and looked at their performance in L2 English. The independent variables were WO (Noun+ Verb+ Noun (NVN), Verb+ Noun+ Noun (VNN), Noun+ Noun+ Verb (NNV), as in all CM studies presented here), agreement and animacy. They concluded that L1 strategies operate during L2 processing and that the use of language-appropriate strategies interacts with level of L2 proficiency. The problem for the CM was the persistence of the L1 strategies that seems to go against the theory of cue validity. Individual differences found in the German subjects also seem to contradict the assumptions of the CM.

Kilborn and Cooreman (1987) also investigated the role of WO, animacy and agreement, in English-Dutch and Dutch-English processing. It was found that the two groups differed significantly in the case of NVN and NNV orders. Dutch speakers of English also differed from English monolinguals, who chose the 1st NP 15% of the time in VNN orders, i.e. they interpreted them as VSO. The native English speakers' 'second NP strategy' (-OS- interpretation) in non-canonical orders (VNN, NNV) has been observed in other studies too (e.g. Bates et al. 1982; MacWhinney *et al.* 1984) and has been characterized as 'surprisingly consistent' (Kilborn & Ito 1989: 270).

Wulfeck *et al.* (1986) in their study on Spanish-English bilinguals, identified different subgroups of L2 learners that differed in terms of the strategies they used during L2 processing. From the two groups they identified, only one of them employed L1 strategies during L2 processing, whereas learners of the other group did not employ distinct strategies for either language but rather an amalgam of strategies drawn from the two languages, which were equally used during L1 and L2 processing. This difference between the two groups could be due to the different levels of L2 proficiency that the participants were at; but fluency or other such factors have been discarded as possible

sources of the observed differences. Instead, Wulfeck *et al.* have argued that alternate routes are available to the learners: natural languages vary in the way they divide up tasks of assigning surface form to underlying function, and the processing mechanism that deals with such potential variability must be flexible as well. It is this flexibility within individual speakers and the existence of alternate learning routes that is responsible for these differences. We will return to the issue of individual differences in our discussion about the problems that similar findings pose to the CM.

Miao's (1981) research pointed out that transfer alone cannot explain differences between L1 and L2 processing; it also raises the problem of identifying the 'stronger cue', which takes us back to the general question of what actually counts as a cue and how can objective criteria be used for the definition and identification of cues in a language. Miao studied the role of WO and animacy in Chinese processing by native speakers and English learners. Her research hypothesis was that WO will be the dominant cue in sentence interpretation in Chinese. Contrary to that, she found that native speakers of Chinese do not rely on syntactic cues but rather on semantic ones. This finding lead to the 'reconsideration' of the strong cues in Chinese, and it has been argued that the topic feature in Chinese is also very important, and 'may be afforded a relatively high status in real-time processing strategies in Chinese' (Kilborn & Ito 1989: 267). Miao also found that English L2 learners of Chinese rely heavily on WO and think that the agent of the sentence is the first NP both in NVN and NNV orders. In VNN orders, the first noun was chosen as the agent 33% of the time. Thus, although the general conclusion that can be drawn from these data is that L1 processing strategies are used in L2 processing, there still remains the question why the characteristic second noun strategy of English was not found in NNV Chinese sentences.

Topic was one of the independent variables, along with WO and animacy, in **Gass' s (1987)** study too. Her subjects were native speakers of Italian and English whose performance was tested in the interpretation of L2 English and L2 Italian utterances respectively. The results indicated that English speakers of Italian used animacy as the primary cue to agency, as native Italians did. On the contrary, Italian speakers of English used animacy more than WO as a cue to agency, unlike native English speakers, who depended on WO. Based on these findings, Gass claimed that 'semantic primacy' makes it easier for English speakers of Italian to switch from WO to animacy, but it also becomes a source of difficulties in the case of Italian speakers of English who have to adopt a new strategy, based on syntax. Gass' s findings were contradicted by the results

of English-Japanese bilinguals, who seemed to override the semantic bias in the L2 (Ito, reported in Kilborn & Ito 1989).

Use of L1 strategies and level of L2 proficiency:

Ito (reported in Kilborn & Ito 1989) ran two experiments on Japanese-English:

In the first experiment, she looked at the performance of Japanese-English bilinguals during a sentence interpretation task in which WO and animacy were manipulated. The bilinguals were sub-divided into two groups: fluent and non fluent. The bilingual speakers not only differed from the control group, as they did not rely on WO for the identification of the agent, but also did not seem to have a consistent WO strategy. The fluent and the non-fluent groups behaved differently, and their responses varied depending on animacy considerations: the non-fluent speakers of English selected the first noun, regardless of WO or animacy considerations, whereas the fluent group selected the first noun only in utterances where the animate noun preceded the inanimate one. Despite this difference, both fluent and non-fluent Japanese speakers of English seemed to move away from their L1 norm and, although they relied more on animacy than on WO, Ito concluded that they were sensitive to the role of WO in the L2 English.

In her second experiment, Ito looked at English–Japanese fluent and non-fluent bilinguals. She used the same technique, only this time she added case-marking as an extra variable. In unmarked sentences, she found that fluent and non-fluent English speakers of Japanese relied more on WO than native speakers of Japanese did. In the three WO conditions, the English-Japanese fluent and non-fluent bilinguals have nearly identical responses, especially in the case of the two non-canonical orders. Kilborn and Ito (1989: 280) first noted that these results cannot be interpreted under L1 influence alone, especially in the case of NNV order and contradict the assumption made by the CM, i.e. that L1 strategies are directly transferred to L2 sentence processing. In the case-marked sentences, Ito found that native speakers relied not on WO but on morphological case; a similar pattern was observed in the group of fluent L2 speakers. Non-fluent L2 speakers, on the contrary, relied on WO and did not attend the morphological markers in the case of NVN and VNN orders, whereas they tended to interpret NNV orders as SOV, which is not grammatical in their L1.

Su (2001) also used a sentence interpretation experiment with English and Chinese learners at three different stages of L2 development (beginning, intermediate, advanced). The variables manipulated in the experiment were WO and animacy. The results indicated that 'transfer patterns do vary as a function of proficiency' (ibid.: 83):

Chinese-English speakers depended on the animacy cue when it competed with WO, even for canonical NVN sentences, in the case of beginning L2 speakers; the intermediate and advanced groups also used their L1 strategies for non-canonical orders. English-Chinese speakers, 'regardless of proficiency level, made the greatest use of English WO strategies in interpreting Chinese sentences CE group L1 transfer was apparent at the three stages; the WO cue accounted for 93%, 87% and 76% of the experimental variance in the beginning, intermediate, and advanced groups, respectively' (ibid.: 101). Su also concludes that the results from this study provide evidence for forward transfer, amalgamation and differentiation[1], and therefore more than one transfer pattern is possible at the process of acquiring an L2. Similar results were reported by **Liu *et al.* (1992)**, who compared early and late bilinguals of English and Chinese: a variety of transfer patterns were attested in the case of early bilinguals, and authors concluded that transfer may be a result of a 'complex interaction of variables, including age of exposure to L2 and patterns of daily language use' (ibid.: 451).

Reaction Times

Apart from testing the importance of WO, agreement and animacy in English, German, and English-German speakers by means of 1st noun preference, **Kilborn (1989)** added another variable, response latencies, in order to investigate whether -and when- the same cues affect the time of processing. The results indicated that native speakers of English observe the second noun strategy in non-canonical orders and that they differ from German-English bilinguals in VNN and NNV orders, 'where L2 speakers did not exhibit the same second noun strategy seen in L1 subjects' (ibid.: 8).

With respect to response latencies, Kilborn reports that in the auditory modality (i.e., when participants heard the sentences), native speakers of English were faster in NVN orders and slower in VNN. More interestingly, in the visual modality (i.e., when participants read sentences), the German (L1, L2) group had faster responses in NVN orders and slowest in VNN, i.e. exactly the reverse pattern from the auditory modality. In the 'Language by Animacy analysis', a significant main effect of animacy in German was found, but only in the visual modality. Response times in the latter modality are similar to those of the German monolingual group. Overall, the German group, both native (German tested in German) and L2 speakers (German tested in English), have

[1] as well as for backward transfer, i.e. when the L2 strategies are used during L1 processing, a finding that poses certain problems for the CM (ibid.: 108-9).

slower response times than the native English group. This is also apparent in the case of the other variable, i.e. agreement.

Taken together the two variables, it was found that in the native English group the most consistent responses were also the most rapid. SVO interpretation was preferred in NVN orders and the average reaction time was shorter than the mean duration of the sentence themselves. In non-canonical orders, reaction times are longer, as English speakers wait for the second NP before they apply the 'second noun' strategy.

Kail & Diakogiorgi (1995) ran two experiments: (1) off-line task in order to investigate the weight of different cues and to identify strategies used by Greek young children and adults in their processing of simple sentences; and (2) an 'on-line' task to examine at what point in time these cues are taken into account (adults only).

In the first experiment, the linguistic material consisted of 54 (for children) and 90 (for adults) transitive sentences crossing three linguistic cues: WO (NVN, NNV, VNN); Animacy (AA, AI, IA); and Case (no contrast cue (7); one contrast cue (8); two contrast cues (9)).

(7) to puli sprohni to molivi
the-bird.NOM/ACC pushes the-pencil.NOM/ACC
'the bird is pushing the pencil' or *'the pencil is pushing the bird'*

(8) to puli ton anaptira sprohni
the-bird.NOM/ACC the-lighter.ACC pushes
'the bird is pushing the lighter'

(9) sprohni o likos tin ghata
pushes the-wolf.NOM the-cat.ACC
'the wolf is pushing the cat'

Adults listened to the sentences recorded by a female native speaker. Then they were asked to decide which of the two nouns was the agent. Choice reaction times were collected.

Kail & Diakogiorgi' s conclusion was that that the weight of the three main cues in sentence processing is correctly predicted by the validity of these cues in Greek: Morphological cue> Animacy cue> Word order cue. Moreover, adults' reaction times show that:

- subjects rely on animacy contrast when there is no morphological contrast cue

- if the animacy contrast cue is absent, they use the first noun strategy, i.e. they take the first NP to be the Subject of the utterance, and
- even though WO has no direct effect on processing, the relative position of the two nouns seems to be a determinant factor for the interpretation of sentences with case marking: according to the researchers, reaction times are significantly shorter when Nominative (Nom) precedes Accusative (Acc) than in the opposite pattern; this holds for cases with one or two morphological contrast cues.

In the second experiment, in which the same linguistic materials were used, participants had to choose as soon as possible which of the two nouns of the orally presented sentence was the agent. Results indicated that:

- sentences without case marking take longer to process than cases with case marking
- sentences with one morphological contrast cue are harder to process than sentences with two such cues
- if there is one morphological marking, its position is a determinant factor regardless of case. That means that the effect of case is not merely a function of the number of case markings present in the utterance. Subjects make their decisions as soon as they hear the first inflected noun without waiting for the subsequent information in the sentence
- the presence of one single decisive processing cue (morphological suffix) is more efficient than the presence of multiple cues converging to a given interpretation.

These results demonstrate, according to the researchers, that morphology is the determinant cue in Greek children's and adults sentence processing. If this information is missing, the semantic information becomes the basis for sentence interpretation. The developmental results also have two implications: 1) they bring into question the predominant character of morphology, and 2) they reveal the use of a WO strategy, the first noun strategy, that is 'quite surprising' in a language where WO has weak validity.

An interesting developmental result is that when the Nom/Acc contrast is neutralized, the youngest age groups rely on noun animacy, the older ones are sensitive to WO. Such a result has been mentioned for Italian too (Bates *et al.* 1984). This 'pseudotopological' strategy, which involves choosing the first noun as the agent of the sentence, is explained as a result of a great cognitive load (due to the necessity of

remembering three constituents and establishing the relations among them) under which WO is not perceived as a whole unit. It is also argued that sentences in which an Acc NP precedes a Nom NP do not fit participants expectations, since there is a high rate of wrong responses given by children and long reaction times in adults' processing. According to participants' expectations the Subject noun corresponding to the agent of the action should precede the Object noun which corresponds to the patient. In the opposite case, they tend to delay their decisions until they have heard all the information available in the sentence.

The researchers' conclusion about the role of WO in the processing of simple sentences is that even though WO is not *per se* a determinant cue in Greek, the relative order of the two nouns regularises the relation between two local cues, the animacy and the morphological contrast cues. With respect to the adults' group, it is found that reaction times were not always shortened by the cue convergence or inhibited by cue competition. Cue validity interacts with cue cost, a fact that explains that when morphology is available in the sentence, processing becomes faster when the animacy contrast is absent.

Shortcomings of the 'cue-approach'

A first criticism comes from Green (1993: 259), who argues that the CM 'has no conceptual component and is therefore incomplete'. Moreover, and as we have already mentioned, researchers working within the CM often had to interpret certain data that seemed to contradict the assumptions made by the model. Three of the 'problems' that have been recognized are: a) persistence of L1 influence, b) incomplete L1 transfer, and c) individual differences. Apart from these, we will discuss some other drawbacks of the CM, of which the most important is perhaps the definition of *cues*.

a) what counts as a cue? As already mentioned, the problem with identifying valid cues in a language surfaced in Miao's (1981) study, where it was assumed that WO will be the dominant cue in Chinese but the experimental findings did not support this assumption. The question is not only how we can identify the relevant strength of certain cues, especially in languages in which more than one cues seem to be important, but also whether the initial assumptions could be altered on the basis of conflicting evidence. In other words, how legitimate is to (re-)determine cue validity and cue strength on the basis of experimental research, and not being able to define cues and their relevant strength on more theoretical grounds? This is one of the most serious issues that the CM should have addressed, but it is not always clear that this has been done appropriately.

Another example comes from Kail & Diakogiorgi, who believe that the use of a WO strategy by native speakers of Greek is 'quite surprising'; the authors seem to forget the many instances of syncretism, especially between Nom & Acc types, which make WO less unimportant for Greek sentence interpretation than it is thought of.

b) persistence of L1 cues: Kilborn and Ito (1989) have tried to account for the phenomenon of L1 persistence by proposing two explanations:

- persistence results from "the statistics of massive overlapping of L1. Once established, cue weights may be difficult to change" (ibid.:286).
- redundancy, which is a characteristic of natural languages, permits L2 speakers "to 'reconfirm' their L1 tunings often enough to stave off the rare disconfirmations. For example not all NVN strings in German require an SVO interpretation, but each instance which does so would tend to 'shore up' a native English speaker's already well-established bias in that direction" (ibid:287).

The first scenario is problematic: first of all, it does not really explain why certain - but not all- cue settings cannot be changed, especially in cases where the L2 data seem to 'force' such a change. Moreover, if cues resist change and reformulation, then they are not very useful in acquisition –at least not as useful as it has been originally wished. As for the second explanation, it makes the strength of cues even weaker, since it actually means that there are biases that may go against the incoming data.

c) 'incomplete' L1 transfer: according to the CM, L1 strategies are directly transferred to L2 processing. This assumption, as we have seen, has not always been born out by the data. Kilborn and Ito (1989) assume that it is not the language-specific strategies that invade the L2, but rather an awareness of the potential for a certain cue, such as WO, to play a prominent role in sentence interpretation. Thus, in the case of English-Japanese speakers, it is hypothesized that these learners have adopted a *'meta-word-order strategy'* which is based not on the particular orders found in the L1 but on knowledge of the canonical order in the L2 (ibid.: 282). This assumption, though appealing, does not explain another fact, also verified from a great number of studies, i.e. 'complete transfer'. In other words, we still need a clearer explanation of why sometimes language-specific strategies are transferred in the L2 and some other times it is only 'meta-strategies' that are transferred in the L2.

d) individual differences: Several proposals have been put forth in order to account for the individual differences found in the L2 data. To mention but a few, Kilborn & Ito (1989) proposed that the four possibilities of transfer (backward, forward transfer,

amalgamation, differentiation) might be observable within the same individual, depending on a variety of factors, such as input and output conditions (ibid.: 287). These differences can be due to different treatments of canonical and non-canonical WOs, or, as Kail (1989) assumed, people might be sensitive to two cues, e.g. WO and animacy, and split their strategies accordingly, or they could be the result of material and the process used in the experiments (cf. Braidi 1999: 119). Bates *et al.* (1982) suggested that a certain 'cue-bias' may have independent psychological status, or that people simply choose one of several possibilities and stick with it; as Kilborn & Ito (1989: 289) phrase it: 'faced with a limited number of cues to chose from, none of which is particularly overwhelming, individual preferences may determine what strategy will win'. These assumptions minimize the role of L1 that was been assumed by the CM.

e) patterns of responses: the approach of the CM is more descriptive and vague than specific and explanatory, the result being that certain differences in the observed patterns have been overlooked. For example, by looking at the pattern of 1st NP choice in the different WO and animacy conditions, as found by Kilborn (1989, 1994), we notice that the German speakers of English differ from monolingual German and from monolingual English speakers in the case of NNV sentences; and in cases where only the second noun is animate, German speakers of English differ from their L1 counterparts, whereas in the other conditions their responses were nearly identical. Kilborn (1994: 929), without referring to the differences we observed, notes that the L2 pattern 'is intermediate between German and the pattern observed in English monolinguals, perhaps indicating that these second language learners have begun to move away from essentially neglecting WO as a cue to thematic role toward some reliance on word order'. We don't know why they don't move away from the L1 pattern in the case of VNN sentences. The research questions are more of a 'yes-or-no' nature and assumptions are mainly made about the cues in question. Thus, the model could not explain similarities and differences between the observed patterns, possibly because it is not interested in doing so, a drawback that also relates to the next problem that CM has.

f) explanatory adequacy: it is interesting to notice that the main concern of the CM is to prove that certain cues are more valid in some languages than in others, but the explanation of the patterns of preferences that are found in the data are not so important for CM advocates. For example, no explanation has been offered for the 2nd Noun strategy that has been observed in English native speakers in non-canonical orders which has been assumed to influence L2 processing too: there still remains a question as to

why these speakers have a 'second-noun preference'[1]. The fact that this L1 strategy is used in L2 contexts is justified by the assumption that all strategies transfer, a hypothesis that also disregards the L2 input.

g) quality of the input: the experimental materials that are often presented to L2 learners are at best awkward –especially in the case where English utterances in non-canonical orders are involved – or ungrammatical, like when case markers are omitted (Braidy 1999:118-9). Although MacWhinney *et al.* 1985 have tried to address this drawback by arguing that the same strategies are deployed by Hungarian L2 speakers both in grammatical and ungrammatical utterances, Sasaki (1991) notes a difference between the relevant acceptability of Hungarian and Japanese utterances; in a related study, Sasaki (1997) found that the process of canonical WO in Japanese and English differs, depending on whether such utterances are presented alone or along with non-canonical orders. As Braidy (1999: 119) notes: 'the quality of the input and the type of presentation has an effect on L2 processing'.

2.2.2.2. Interpreting ambiguous utterances

Research on L1 influence on parsing procedures has also focused on the interpretation of ambiguous sentences, since the crosslinguistic differences that have been found in the way speakers resolve ambiguities suggest that same parsing strategies might be language-specific rather than universal (Felser *et al.* 2003). The question in the L2 context is whether these specific strategies are transferable or not. Comparatively little is known about the way learners process L2 input (ibid.); evidence is usually contradictory and no definite answer can be given with respect to the L1-in-L2 issue.

For example, Papadopoulou & Clahsen (2003) found that L2 speakers of Greek from different L1 backgrounds (Spanish, German, Russian) exhibited the same preferences with native speakers in terms of *with*-clauses but none of the three L2 groups had a clear preference in the case of the genitive NPs, and the authors concluded that L2 learners did not transfer PP/NP-attachment preferences form their L1. On the contrary, Fernández's (1998) Japanese-English bilinguals showed clear effects of transfer from their native language with respect to relative clause attachment; similarly, Frenck-Mestre 1998 reports that less proficient English-French late bilinguals transfer their attachment preferences from their L1. Fernández (2002: 211-2) argued that previous studies on relative clause attachment differ critically in their experimental

[1] a possible explanation could be found e.g. in Hawkins (1990).

methodology and that makes comparisons very difficult. Frenck-Mestre (2002), however, after reviewing a number of on-line studies of L2 syntactic processing of ambiguous sentences, came to the general conclusion that 'forward transfer' decreases as the learners become more proficient and they move towards a native-like way of processing.

As for the lack of nativelike ultimate attainment, it has been attributed, 'at least partially', to parsing problems rather than to an inability to acquire grammatical competence per se (Felser *et al.* 2003: 434). Such an explanation is also adopted for the interpretation of findings form on-line experiments, which have shown that L2 learners' performance is significantly slower than native speakers' (cf. Frenck-Mestre & Pynte 1997: 119; for an overview of reading-time studies on the four ambiguous constructions see Frenck-Mestre 2002).

2.3. Summary and conclusions

L1 transfer of grammatical knowledge has been examined by UG approaches; the common characteristic of the hypotheses and models discussed in section 2.2.1, is that they all assume some influence of the L1 on the L2 grammar, but they differ with respect to the possibility they allow for parameter resetting. Müller's proposal is somewhat different, not only with respect to the stand it takes towards parameters, but also in that it assumes that L1 transfer occurs when the cognitive processor is presented with data that resemble, at least superficially, the L1; in that case, the processor is inevitably activated and the L2 input data are processed in terms of L1 routines. From a processing perspective, a lot of research has been done within the CM, which, despite its theoretical and methodological drawbacks discussed in section 2.2.2.1, has shed some light on comprehension strategies deployed by L2 learners. Although evidence from processing studies is conflicting, it seems that, in most cases, L1 strategies are used during L2 processing but L1 strategies are gradually abandoned, as the level of L2 proficiency increases. There is also convincing evidence that the speed with which L2 input (either ambiguous or unambiguous) is processed differs from the speed that L1 input is processed.

We have, therefore, considerable evidence that L1 processing strategies are transferred in the L2. With respect to L1 influence on L2 representations, most findings seem to point to L1 transfer; the assumption that the apparent success during L2

performance could be a result of misanalysis of L2 data in order for them to fit to the L1 setting (Tsimpli & Roussou), is still a possibility that has to be seriously taken into account. On the other hand, the fact that different analyses can be used to interpret the same sets of data could lead to different analyses of the L2 data and consequently to different conclusions with respect to L1 influence (cf., e.g., Clahsen & Myusken vs. duPlessis *et al.*).

Two methodological problems of the UG studies discussed so far obscure the picture we have for L2 competence. First, many UG approaches have based their conclusions on the performance data of few L2 speakers (sometimes only one L2 speaker). Second, the different kinds of tasks that have been used also make previous studies less comparable than we would wish them to be. A further drawback of most UG approaches, also related to this latter methodological problem, is that they do not take into account the processing factors that might influence L2 learners' performance, despite the fact that none of UG approaches assume a 'one-to-one' relation between performance and competence. Jordens' proposal that L2 production data are performance data that can only be accounted for in terms of a model of language production, though strong, has a serious point. In the next Chapter, we discuss the processes of (L2) comprehension and production, as well as the possible factors that affect (L2) judgments, in order to be able to take a further step towards a more interdisciplinary approach for the investigation of the L1-in-L2 issue.

Chapter 3

Facets of L2 competence in L2 performance

In the previous chapter we reviewed different studies that investigated the L1 influence on the acquisition of L2 WO from two different approaches depending on whether they address the question of transfer of L1 grammatical structure or transfer of L1 processing strategies. In both cases, most approaches make holistic assumptions about transfer, in the sense that they presuppose L1 influence, especially at the initial stages of L2 development. We also noted that many UG approaches base their assumptions on performance data without taking into account performance factors that may obscure the picture of L2 competence.

In this chapter we will further develop this objection, by particular mention to the competence-performance distinction. Although we take this distinction to be crucial in the study of L2 acquisition, we have to face a further difficulty, i.e., that the relation between the two is not at all clear (c.f. Braidi 1991; Sharwood-Smith 1986). As Cook & Newson (1996: 22) note, 'since it was proposed this distinction has been the subject of controversy between those who see it as a necessary idealization for linguistics and those who believe it abandons the central data of linguistics'.

In what follows, we will neither enter to this discussion about the primacy of knowledge over use or vise versa, nor are we going to discuss the notions of *communicative*, *pragmatic* or other types of competence[1]; our aim is to determine how the assumptions about grammatical competence and performance are translated with respect to L1 transfer during L2 acquisition. After defining competence and performance, we try to identify the reasons of variability in L2 performance. We discuss the Competence/ Control Model (Sharwood-Smith 1986) and the difference between insufficient L2 knowledge and insufficient L2 processing strategies. We then move to the task question and we briefly describe the processes of speech comprehension and production as well as those involved in acceptability judgments and we make specific assumptions about the possible influence of the L1. Adopting the hypothesis that transfer

[1] but see Hymes 1972; Corder 1973; Chomsky 1980; Selinker 1996.

could also result from L1 biases of production and parsing procedures, which are fed by the L1 grammar (Meisel 2000: 204), we assume that the L1 effects might be manifested in different ways during different tasks and, therefore, we conclude that the more types of data we have, the better our understanding for L1 influence will be.

3.1. Developing competence and varying performance

Chomsky (1965: 4) defined competence as 'the speaker/hearer's knowledge of his language', and performance as the 'actual use of language in concrete situations'. Competence is independent of context and situation (Chomsky 1980: 59)[1]. It is the abstract grammar required for performance to take place. To quote Valian (1994: 279):

> 'even a child with a complete grammar of, for example, English, could not produce or understand sentences without a performance system. A grammar alone does not buy speech. [...] conversely, a performance system cannot operate in a competence vacuum. There must be grammar to access. It is because of the interdependence of competence and performance that it is impossible to make predictions about the child's productions by reference to either component alone'.

According to the above assumptions, it is clear that competence is seen as identical to the grammatical knowledge, and performance as the process by which this knowledge is put in use. As also pointed out by Lyons (1996:12-3), the notion of 'performance' (as well as 'production'; ibid.) has been ambiguous, as it can denote either the process or the product of that process. In our discussion, by performance we mean the process and not the products of performance; the products are the linguistic data that are analysed on the basis of our assumptions about grammatical knowledge and the processes of (accessing and) using this knowledge.

An uncontroversial point among L2 approaches is that L2 competence is not stable, in the sense that is built gradually, and therefore it changes over time. Thus, 'competence of the learner is much more variable than that of the native speaker, for the simple reason that interlanguage systems are more permeable to new forms than fully-

[1] This distinction between competence and performance 'derives from and is certainly related to the distinction made by de Saussure between *langue* and *parole*' (Corder 1973: 90; see Lyons 1996 for a discussion on these distinctions), and partly corresponds to a further distinction within the Chomskyan perspective, namely that between Internalized- and Externalized- language (I- vs. E-language; see Chomsky 1986, 1991; Cook & Newson 1996).

formed natural languages' (Ellis 1990: 380). Change in competence involves, among other things, the extension of the system at a particular stage in order to accommodate new forms; this in turn might result in a stage where two (or more) forms are used for the same function (ibid.). As a consequence, performance varies, not only among learners at different developmental stages, i.e. not only as a result of the developing competence, but also within the same stage of a specific learner, i.e. as a result of competing rules.

As several researchers have pointed out, it is quite difficult to reach specific conclusions about L1 transfer unless there is an understanding of reasons responsible for learners' varying performance. Certain explanations have been put forth. Tarone (1985) argues that variability in learners' performance data can be systematic, as it reflects the growing capacity in IL and is not simply the result of some performance factors. A possible reason for variability in L2 performance data could be the inherent indeterminacy of the phenomenon under investigation (Sorace 1996). It is, however, equally possible that the amount of learners' attention (cf. Krashen's Monitor Theory) or the processing load (cf. McLaughlin's processing load theory) might play a role.

3.1.1. The Competence/ Control Model

One model that directly addresses the competence-performance issue in L2 development, as well as the role of the L1 in the whole process, is the Competence/ Control Model (C/CM), proposed by Sharwood-Smith (1986).

Sharwood-Smith argues that learners might have achieved a target-like analysis of a given area of the language system but fail to develop a sufficient degree of processing skill to control it during performance. There is, thus, a possibility for competence orders to be different from control orders, as it is assumed that learners are unlikely to use newly acquired competence straight away. The reasons why a rule may delay before full control is established can be either inherent processing problems or low priority for reasons as, for example, semantic redundancy. This provides us with two types of acquisitional complexity: (a) a structure (rule /principle) may be complex in that it is difficult for the learner to integrate it into existing competence; (b) it may pose persistent problems during real-time processing.

According to Sharwood-Smith, two fundamental types of change can take place in language acquisition: competence change and control change. Competence involves abstract mental representations of linguistic principles, some of which are given and

some of which are created on exposure to relevant data, and are stored in long-term memory. Control involves mechanisms, which access knowledge in long-term memory and integrate the various bits of information in acts of utterance comprehension and utterance production. Linguistic control mechanisms, which process linguistic competence, form a subset of all processing mechanisms used in actual language use. Control procedures are seen as language-specific.

Cross-Linguistic Influence (CLI; i.e. L1 influence in our terminology) can be examined in two dimensions: the processing and the competence dimension.

the processing dimension:

- People may use some aspect of previously established processing system, e.g. the L1-based system, for controlling some aspect of the new, developing competence. The channelling of new knowledge via old processing routines is **CLI(1)**. It is *habitual*: the language user regularly resorts to these routes. Until the new mechanisms have reached maturity the learner characteristically resorts to mature, and hence efficient, mechanisms designed to service another language system known to the user. Learners are able to perceive a mismatch between their utterances and native-speaker utterances, but either they have not developed appropriate processing mechanisms to reflect all of their current competence in the L2, or they are not prepared to eradicate the mismatch.
- People developing a new linguistic system may fall back on well-automated processing mechanisms appropriate to the competence knowledge that they possess with regard to some other language; this is **CLI(2)**. It is *sporadic:* it occurs in 'overload' situations where the learner falls back on another system during moments of stress imposed either by circumstances or internally. It represents a more advanced developmental stage.

the competence dimension:

- People developing a new linguistic system over a period of time may hypothesize equivalence between competence systems or some subdomains of competence; this is **CLI(3)** which is *habitual*. Competence, however, might change over time; changes in competence are brought about by (1) new perceptions of, or increased attention to, the input, (2) internal readjustments to make the whole system hang together better, or (3) some internal need to make different competence systems more compatible or serviceable by a single set of processing mechanisms.

3.1.2. Competence, control and parsing[1]

Based on the hypothesis of the C/CM concerning the reasons that lead to the change of competence, we can assume that if L2 learners receive adequate and appropriate input, i.e. the input that can 'signal' the difference between the L1 and the L2, CLI(3) will not affect L2 competence. However, based on the hypothesis about CL1(1), we can assume that L2 learners might resort to L1 processing routines because their L2 processing mechanisms might not be 'mature'. Thus, despite the fact that L2 learners might 'have' the competence, they might not 'have' the performance.

We can, therefore, assume that transfer at the processing level does not depend on *lack* of L2 representations, but it could be due to

a) *different* representations: L2 learners at the initial stages possibly attempt to parse the input on the basis of existing grammar; but 'if the parse is unsuccessful, or if it suggests the need for an analysis inconsistent with the current grammar, this signals that the grammar is in some sense inadequate, motivating restructuring' (White 2003: 153).

b) *'immaturity' of L2 processes*: difficulties that have to do with the realisation of the abstract features or the superficial similarity between the L1 and the L2 could lead to the use of non-nativelike processing strategies. But from the moment that the L2 learners will be able to perceive the difference between their performance and the native speakers', they can start moving towards an L2 processing system, and they can ultimately develop the appropriate mechanisms that could reflect their competence. Still, they might fall back to previous L1 processes, in case of 'overload' situations (CLI(2)). In other words, even at the more advanced levels of L2 proficiency, we might find instances of L1 transfer of processing mechanisms (cf. section 2.2.2; see also section 3.3).

3.1.3. The task question

We can further assume that one possible reason for L1 transfer is that certain tasks might involve processing load that makes the application of newly acquired knowledge even more difficult, and that performance varies across tasks. Indeed, it is a well-attested and broadly accepted fact that

[1] The process of assigning syntactic structure to a sentence is referred to as *parsing* and the aspect of the language processing system responsible for parsing input is referred to as *parser*.

> 'the variability in performance is manifest in the type of task which the learner perform to supply the researcher with data. [...] It is axiomatic that performance in one set performance in one set of circumstances does not guarantee identical or even similar performance in a different situation' (Ellis 1989: 87).

There is considerable evidence in L2 research to show that the nature of the task and its cognitive complexity influences the kind of language that is observed. To mention but a few examples, Larsen-Freeman (1976) found different morpheme orders depending on whether the task was speaking, listening, reading, writing, or elicited imitation; Adjémian & Liceras (1984) found that French-English bilinguals' use of complementizers was not the same in the judgment and the translation tasks they were asked to perform[1]. This brings us to two general questions:

a) What are the reasons for variability across tasks?

b) Which are the best data for exploring L1 influence?

With respect to the first question, Gregg (1990: 368) offers two possible explanations for the varying performance across tasks: either the learner has simultaneously 'several knowledges', one for each task, or the learner has a knowledge of how to realize any given rule in output depending on the specific task. The latter explanation seems more plausible than the former for the following reason: the idea that the learners rely on 'several knowledges' could lead to the assumption that they possibly have many grammars too; this assumption does not match well with the hypothesis that 'at any particular point of the acquisition process, the learner can be said to have an internalized grammar, which constitutes his or her current competence, the current attempt to organize the input data' (White 1989: 36), i.e. a specific grammar which is well-defined and not task-dependent.

A more plausible explanation seems to be the assumption that the more or less apparent comparison between L1 and L2 that the task involves might obscure L2 competence: a translation task, for instance, forces, in a way, the learner to compare the L2 with the L1, and this is why L1 interference is more evident (Ellis 1989: 88-89). Different tasks might also have different processing loads, as already mentioned in the beginning of this section (cf. Ellis 1989: 88-9).

These considerations bring us to the further question, i.e. which task could mirror competence more clearly. For L1 acquisition, Crain & Thornton (1998) argued that production tasks tap speakers' grammars more directly than comprehension tasks. They

[1] see also 'performance' studies with native speakers, e.g. van Nice & Dietrich 2003 who report differences in performance (with respect to conceptual hierarchy) depending on the task (writing / speaking from memory and speaking with pictures in view).

claim that if the child consistently produces non-adult-like utterances, the conclusion should be that such productions 'directly reveal the grammatical competence of the child' and that they are not 'performance errors, unless that model of performance that is being assumed is quite unlike that being assumed for adults' (ibid.: 100). In the case of L2 acquisition, a similar assumption has been made, namely that valid data are those that reflect the learner's 'natural' performance (Ellis 1989:89). Although it might be true that when L2 learners consistently produce a certain structure we can assume that this structure is part of their grammar, it is not equally true that, if an L2 speaker does not produce an L2 structure, this structure cannot be generated by the L2 grammar. For this reason, we take the stand that 'studying free performance alone can lead to the underdetermination of the learner's competence' (Ioup & Kruse in Kellerman 1984: 109).

Acceptability/ Grammaticality judgment tasks have also been deployed especially in UG-approaches, since it is believed that judgments tap learners' competence more directly than other types of tasks; this, however, is not an indisputable position (see Schütze 1996 for a discussion). Our belief is that judgments are subject to performance limitations, since they are 'instances of metalinguistic performance' (ibid.: xi) and as such they may also vary[1].

Thus, the answer to the second question (i.e., which is the best task to investigate L1 influence?) is that the more types of tasks we have, the more complete the picture will be, given the assumption that several other factors –such as the experimental conditions, the elicitation procedures and the different processes that are followed during each task– could affect performance and consequently obscure our understanding about the role of the L1 in L2 acquisition.

3.2. Comprehension, production and judgment data: common basis, different processes, varying outcomes

By this methodological proposal about comparing L2 data that have been elicited by means of different tasks, we specifically mean tasks that could cover a wider spectrum of performance, including comprehension, production and acceptability judgments. By

[1] see ibid. for the issue of consistency of judgments.

focusing on a specific grammatical phenomenon and investigating the different aspects of L2 performance, we might be able to identify whether -and how- the L1 influences L2 performance. But before we start comparing data from different sources, we need to have an idea about the processes involved in comprehension, production and judgment.

In what follows, we first discuss the processes of comprehension and production as well as the task of acceptability judgments in an attempt to describe the factors that affect L2 performance. This discussion can help us realize what problems we are addressing or ignoring and make explicit some of our hypotheses (cf. Meara 1989:12).

3.2.1. Comprehension and Production

Although there are different models for L1 comprehension (see Branigan 1996; Schönefeld 2001 for a discussion), it is commonly accepted that the comprehension process involves lexical, syntactic and semantic processing. First, lexical items are identified and associated to syntactic and semantic features. In the second phase, the syntactic relations between these words are computed[1]. At the final stage, the semantic content of the message will be recovered. As already mention in Chapter 1, it is not the aim of the present research to provide evidence for a specific model; it is important though for our assumptions the fact that syntactic processing is not the only one involved in this procedure.

In fact, there are models that assume a central role to lexeme-specific information, responsible for the selection of the appropriate structure, which is based on preferences associated with the specific lexical items (e.g. Ford, Bresnan & Kaplan 1982). It has to be mentioned here that syntactic information is not the only type of information that might be listed in the lexicon: the frequency with which a lexical item appears in a particular structure may also form a piece of activated information, which might be available during comprehension too (cf. MacDonald, Pearlmutter & Seidenberg' s (1994) context and frequency effects).

No matter how central lexical access is for comprehension, it is undeniable the fact that the way speakers access lexical information may influence the comprehension process as well as production. In the case of L2 speakers, a further question that has received considerable attention is whether L1 and L2 lexical information are kept separately or whether there is a single storage system.

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[1] For this stage, most evidence is based on research on the interpretation of ambiguous utterances.

de Bot addressed this issue in his adaptation of Levelt's 'Speaking' model (1989) for bilingual processing. His proposal is of relevance here, since it 'recognizes the importance of cross-linguistic influence' (Odlin 2003:476)[1]. The first question that he addressed is whether the components in Levelt's model (i.e., knowledge component; conceptualizer; formulator; articulator; speech-comprehension system) are single or double. What is important to our discussion is the third component, i.e. the formulator, since it is here that grammatical rules are applied to the preverbal message.

With respect to the storage system of the bilingual, de Bot argues:

> 'Elements/knowledge of the two languages may be represented and stored separately for each language or in a shared system depending on a number of factors. The most important of these seem to be the linguistic distance between the two languages and the level of proficiency in the languages involved' (ibid.:9).

Thus, a person who knows only a few words and phrases in the foreign language will not have a separate system for that (ibid.). For the mental lexicon, the 'subset hypothesis' is adopted, according which elements from one language are more strongly linked to each other than to elements from another language, the result being the formation of subsets that consist of elements from the same language and can be retrieved separately (ibid.: 11). This assumption also relates to the activation level of each language, which according to Green (1986) can be one of the following:

- *selected*; the selected language is the one that controls the speech output
- *active*; the active language works in parallel with the selected language but is not fed into the articulator
- *dormant*; a dormant language is stored in long term memory but plays no role in ongoing processing.

Following Green[2], de Bot also assumes a 'parallel production' for bilingual speakers, which can also explain phenomena of code-switching. The bilingual, however, can keep the two systems separate. It is also assumed that

> 'in cases where the speaker can make a choice between two possible constructions in a language, that construction will be selected that is closest to the equivalent in the other language' (ibid. 19).

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[1] cf. Poulisse & Bongaerts' (1994) model, as well as the discussion about cognitive processes in L2 learners in Kroll & Sunderman (2003).

[2] and others (for references, see de Bot 1992; de Bot & Schreuder 1993).

This is important in cases that the bilingual has unequal command of the two languages; if the learner has very little knowledge of the L2, the morpho-phonological information for L2 lexical items will be language-specific, whereas the syntactic information from the L1 translation equivalent will be activated.

Based on the discussion above, we can make the following hypotheses about the role of the L1 during the processes of comprehending and producing L2 speech:

L1 activation:

All relevant L1 knowledge will be activated in parallel with L2 knowledge. This means that L1 knowledge is also available and L2 learners 'select[1]' the appropriate pieces of information while producing or interpreting L2 speech.

Lexical knowledge:

Given the limited L2 vocabulary that learners might have, along with the assumption about parallel activation of L1 and L2 lexical information, we can assume that lexical access might be a more demanding (and time-consuming) process than it is for native speakers, and that could result in non-nativelike performance during production and comprehension. We also need to take into consideration the fact that, in both cases, certain structures might be preferred over others as a result of lexical influence (e.g. argument structure, information about the frequency with which a lexical item appears in a given structure) and not because these structures are the only ones generated by the grammar.

(Choosing among) syntactic structures:

Learners with little or no knowledge of the L2 might transfer their L1 structure during their initial attempts to parse L2 input. As the level of L2 proficiency advances, L2 learners might develop a new system, depending on the distance between the two languages. In cases where two or more structures are available in the L2, learners might prefer those structures that are closer to the L1.

3.2.2. Judgments

Although several models have been proposed for language comprehension and production and some theories have reached some point of consensus with respect to their

[1] the process of 'selecting' or 'choosing' relevant information (or 'preferring' certain structures or strategies) is not conscious, and this hypothesis holds for all relevant discussion in this thesis. Here we do not discuss the issue of how does the production system 'knows' which elements and rules to select from the L1 or the L2 (but see de Bot 1992; de Bot & Schreuder 1993).

architectures, the processes involved in grammaticality or acceptability judgments remain unknown and the question of what judgments are made of has not been given an uncontroversial answer.

Judgment tasks, however, have been used extensively in L2 acquisition literature, especially in UG approaches, and there are good reasons for that preference: as it has been argued (Schütze 1996), by means of such tasks we can examine sentences that rarely occur in spontaneous speech or corpora; judgments also constitute a way of obtaining negative evidence, which is rare in normal language use. Moreover, in observing naturally occurring speech data, it might be difficult to distinguish errors from grammatical production. Finally, the use of acceptability judgments allows us to minimize the influence of factors that might affect in a more direct way other aspects of performance; this, of course, does not mean that judgments are not subject to extragrammatical influences too.

Before we discuss the factors that might influence judgments, we need to make a first distinction between intuitions and judgments. Linguistic intuitions are the 'non-reasoned feelings' about a sentence (Botha 1973); judgments are the 'linguistic descriptions' (Sorace 1996). Sorace (ibid.: 379) notes that these terms are frequently used interchangeably, despite the fact that the only way we can access intuitions is via the acceptability judgment tasks and therefore the latter are the 'mediators' to the former. We are going to maintain this distinction and use the term *judgments* for the actual products of the process of judging and the term *intuitions* for speakers' feeling about certain structures.

A further distinction that has to be made is between acceptable and grammatical sentences; the definition of the former has already been given by Chomsky (1965: 10), who used it 'to refer to utterances that are perfectly natural and immediately comprehensible without paper-and-pencil analysis, and in no way bizarre or outlandish'. He also states that acceptability is a matter of degree and assumes that 'the more acceptable sentences are those that are more likely to be produced, more easily understood, less clumsy, and in some cases more natural' (ibid.). Despite the fact that both phenomena are considered to be a matter of degree, the scales of grammaticaliness and acceptability may not coincide, (ibid.: 10-11): a sentence might not violate any grammatical rule but be less acceptable than other grammatical sentences due to other factors, like those in Chomsky's definition of acceptable sentences (cf. Cowart 1989).

A similar claim is found in Cowart (1996: 9), who postulates that, although there might be absolutely grammatical or ungrammatical sentences, there is not such a thing as an absolutely acceptable or unacceptable sentence; he adds that 'any attempt to establish criteria for absolute acceptability or unacceptability would confront serious difficulties'.

Schütze (1996: 66), however, notes that we cannot talk about degrees of grammaticality, because Chomsky's theory assumes the existence of absolute grammaticality, and we can just talk about degrees of ungrammaticality. He further argues (ibid.: 20) that the grammaticality of a sentence is a question about competence, whereas the question about the acceptability of a sentence is a question about performance[1], since the factors that make some (grammatical) sentences less than acceptable can be extragrammatical (ibid.: 23).

In any case, there is general agreement that grammar is only one of the factors that might affect the process of judging the acceptability of a sentence. To quote Cowart (1996: 7-8):

> 'while forming a sentence judgment, a speaker draws on a variety of cognitive resources to perceive the auditory or visual signals through which the sentence is expressed, to parse or process the sentence as its elements are identified, to form an evaluation of the sentence and to organize and execute a response. Among the cognitive resources the speaker will draw on in executing a performance of this kind, there is, by hypothesis, a grammar [...] the grammar relies on the rest of the cognitive system to instantiate those grammaticality values in overt judgments of acceptability'.

3.2.2.1. 'Extragrammatical' factors and L1 effect

While performing a judgment task, L2 speakers are bound to be influenced by 'extragrammatical' factors too. Such factors could be: parsing strategies, context and mode of presentation, pragmatic considerations, mental or introspective state, linguistic training (Sorace 1996; Bard et al 1996). Short-term memory limitations may result in reduced acceptability of sentences too (Schütze 1996: 31). The learners' L1 could affect judgments, not only because L1 representations might be transferred, but also because L1 comprehension strategies might be deployed in order for the L2 input to be parsed, and that could result in the reduced acceptability of an L2 sentence. Garden-path

[1] Schütze uses the term *performance* 'to refer to behavior, as opposed to knowledge, including both people's behavior on specific occasions and their general patterns of behavior' (ibid.: 20-1).

sentences in the L2 might be more or less acceptable (cf. ibid.) depending on the interpretation strategy that L2 speakers are deploying.

In fact, it has been argued that L2 learners rely on a greater number and different types of strategies while judging L2 sentences than native speakers do (e.g. Davies & Kaplan 1998). A possible result from this difference, however, could be that L2 judgments cannot be nativelike, a fact that has not (always) been verified by experimental findings. It is true that indeterminacy is a characteristic of L2 judgments, but it is also argued that this is due either to developing knowledge or to intermediate grammaticality (Sorace 1996). Moreover, extragrammatical factors can be controlled for, by a careful selection of the test materials, the design and the participants (Sorace 1996: 378).

3.2.2.2. The process of judging

The process of judging starts with the interpretation of the L2 sentence: the sentence has to be parsed before being judged. We could assume that the L2 speaker might use interpretation strategies that are L1-based[1]; this kind of transfer might elevate the difficulty in comprehension and, as a result, the acceptability of the sentence might be reduced. With such an assumption, it is as if we claim that sentences that are understood more easily are those that are more acceptable (cf. Chomsky's definition of acceptability). This might be true to a great extent, but easiness of comprehension, as already mentioned, is not the only factor affecting judgments: once the sentence is parsed, it is compared against the other experimental sentences and against the possible sentences that have or could been heard/ seen, and perhaps possible contexts might be thought of that confirm or 'test' the 'applicability' of the sentence (cf. Chomsky's hypothesis about the more acceptable sentences quoted above), which could also affect the product of the process, i.e. the actual judgment.

Meanwhile, L1 relevant information will also be activated, given the hypothesis of the active language (section 3.2.1): L1 grammatical/ lexical/ pragmatic, etc knowledge might interfere with L2 knowledge, and the result could be non-nativelike judgments. Nevertheless, until the moment that the actual response is given (e.g. a number, or a *yes-no* answer, etc), L2 learners might have the opportunity to 'decide' about the most relevant piece of competing information and base their final decision on their L2

[1] This is possibly why Bever argued that, if at all possible, judgments continua should be derived from independently-motivated theories of speech perception and production, while the grammar should be left discretely intact (Schütze 1996: 64).

knowledge, i.e. their L2 competence[1]. Thus, it could be possible that 'time' is also a factor that could affect L2 judgments in a positive way (in the sense that L2 judgments will be based on L2 knowledge).

3.2.2.3. Reaction times and judgments

It is therefore important to measure L2 learners' reaction times, i.e. the time they spend from the minute they receive the L2 sentence until they reach a 'decision' about its acceptability. Reaction times (RTs) of grammaticality judgments have been studied in the past and certain hypotheses have been put forth in order to interpret research findings. For example, Sajavaara & Lehtonen (1989: 42) argued that

> 'a fast rate of decision making indicates a high degree of availability if the data concerned for the processing mechanism and a high level of automaticity in the access to the linguistic data base. The faster the reaction, the more automatic is the choice'.

The most frequent finding of similar research has been that L2 speakers' RTs are slower than native speakers'. For example, Juffs & Harrington (1995) found that their Chinese-English bilinguals were slower than native speakers of English in the task of judging the grammaticality of *wh*-questions but were able to detect the ungrammatical sentences; they argued that the longer RTs were due to parsing problems and not to (divergent or incomplete) grammatical competence. Juffs (1998) also investigated L1 transfer of lexical representations and the effect of such transfer on online parsing with Japanese, Korean and Chinese bilingual speakers of Romance languages. His conclusion was that parsing ability is not necessarily the same as knowledge of representation of argument structure -i.e. competence- and that different levels of accuracy that exist do not match precisely with the parsing difficulty encountered[2].

The conclusion could then be that L2 learners are slower than native speakers due to processing reasons, because they need more time to access their L2 knowledge (cf. section 3.2.1).

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[1] Again, (section 2.3, this Chapter) we do not discuss the question whether L1 and L2 competence are kept distinct or integrated in a single system with different switch settings at particular points of choice (cf. also Lyons 1996: 28).

[2] see also White 2003 for more references and relevant discussion on L2 reaction times.

3.3. The relationship between comprehension, production and judgments

So far, we adopted the hypotheses that the relevant L1 information is also activated while performing an L2 task, i.e. whether learners interpret, produce or judge an L2 sentence the L2 is the selected language, whereas the L1 is the active one. Additionally, we argued that when the L2 offers more than one choice, learners will tend to choose the L1 closest equivalent. These are the points of similarity between the three processes (see also section 3.2.1). There are, however, points of dissimilarity.

With respect to the relationship between comprehension and production, we take as our working hypothesis that the mechanisms involved in the former are not the same as those involved in the latter (cf. Bock & Huitema 1999: 385-4) and that, despite their similarities, there is no direct connection between production and input-processing mechanisms (White 1991[1]).

A further point of difference is that interpretation and production strategies might not be identical and that could result in different L1 effects during the two tasks. Moreover, the difficulties posed by a production task could 'force' L2 learners use their L1 knowledge and/ or their L1 processing mechanisms (cf. the discussion about the task question, section 3.1.1). In other words, transfer during production might be more 'unconditional' than during comprehension (cf. section 4.1). This difference could be due to the more demanding task that speakers have to perform during production and the extra processing load it imposes (cf. Færch & Kasper 1989: 189). Evidence for the more 'demanding' nature of production comes from research findings which indicate that L2 speakers can detect deviant forms/structures in their speech, even when they continue to use non-target forms for a (longer) period of time (Meisel 1980: 146).

In production, L2 speakers rely totally on their ability to retrieve and productively use all their L2 knowledge (lexical, morphological, syntactic, pragmatic, etc.); the information they have to process simultaneously and its coordinated 'active' use may cause more difficulties than the more 'passive' access of similar pieces of information during comprehension.

We have to clarify however, that by assuming that production is a more 'demanding' task than comprehension, we are not making any qualitative predictions about L2 performance and we certainly do not imply that L2 learners' performance should be

[1] see also Kess 1992: 63-6, for the question of an interface between speech production and perception

'better' (e.g. more nativelike) in the latter task than in the former, nor that a 'better' performance during comprehension is a prerequisite for nativelike performance during production. This hypothesis only predicts a *different* performance in terms of L1 influence, as L2 learners' might resort to the L1 more readily during production than during comprehension, i.e. we anticipate *different* L1 effects.

3.4. Summary and conclusions

The first conclusion we draw from the discussion in this Chapter is that the manifestation of the learners' system in performance will bear ambiguous traces of the learner's knowledge (cf. Færch & Kasper 1989: 177). Performance results from the interaction of a variety of factors, 'of which the underlying competence of the speaker-hearer is only one' (Chomsky 1965: 4). With this in mind, it comes as a surprise that factors that might affect performance were overlooked by some competence approaches, which are built on instances of performance (cf. Sharwood-Smith 1982).

In this Chapter we also argued that the different requirements of specific tasks might affect performance; hence, our second conclusion was that we need to collect L2 data from different sources (that represent different aspects of L2 performance) in order to be able to build a complete picture of the role of the L1 during L2 development. In any case, it has to be kept in mind that

> 'speakers may know more than is present in the data –or they may make it look like they have knowledge when in fact they do not' (Hawkins 2001: 334).

The conclusion from the brief discussion about the comprehension, production and acceptability judging processes is first of all that several factors could affect L2 performance. These factors might differ across tasks and could have a more ore less direct effect on L2 performance. Moreover, L1 is active while L2 is selected, and that could affect L2 performance, especially when the L2 and the L1 bear some superficial similarity, in which case the L2 learners will tend to 'choose' the L1-closest equivalent.

By comparing the L2 output from these different processes, we could be able to have a more complete picture of L2 performance and a better understanding of the exact role that the L1 plays. Ultimately, different L1 effects in the three different tasks might help us understand when and why L2 speakers resort to their L1.

Chapter 4

Research Hypotheses and Research Design

In this Chapter we present the general hypotheses with respect to L1 transfer that motivated our research, and explain why we have chosen to focus on the acquisition of WO. We describe the structure of each of the three languages involved in the study, i.e. Greek, Albanian and English. We then present the more specific research hypotheses that concern transfer of L1 WO and agreement features along with transfer of L1 processing strategies during comprehension, production and acceptability judgments. Participants' profiles are presented in the last section of this Chapter.

4.1. L1 transfer: a 'conditional' phenomenon

In the previous Chapter we argued that L1 influence can be found at the processing and at the competence level, that specific tasks might 'prime' L1 transfer, and that the level of L2 proficiency might also be a determinant factor for L1 influence. Thus, we hypothesize that L1 transfer is a 'conditional' phenomenon, which depends on specific factors. Based on these observations we will set off to investigate the following issues:

- transfer of L1 knowledge;
- transfer of L1 processing strategies;
- L1 effects during different L1 tasks and at different levels of L2 proficiency.

4.1.1. Conditional transfer of L1 knowledge

L2 acquisition starts when L2 learners start receiving –and parsing– L2 input[1]: L2 learners built their competence via the interaction of UG with L2 data, i.e. they must have some input to parse in order to 'decide' on the appropriate settings of the target language. We assume that transfer of L1 knowledge is not unconditional, since it

[1] This is why it has been argued that the stage at which transfer first occurs is comprehension (Ringbom, 1992).

presupposes some indications from the input that the L2 does bear some similarity with the L1 (cf. section 2.2.1[1]). If the L2 data do not give grounds for such a hypothesis, then L2 learners will assume a different analysis, based on UG options.

4.1.2. Conditional transfer of L1 strategies

L2 learners might use their L1 processing strategies in order to parse L2 speech. Nevertheless, in this case too, we assume that this second kind of transfer will also be conditional, as it will only occur:

a) when the L2 input either provides support for learners' hypothesis that the L1 and L2 are similar, or allows for different options –in which case the well-automatized L1 procedures will be preferred (cf. Müller's strategy in Chapter 2 and de Bot's assumptions in Chapter 3), or

b) when L2 speakers have difficulties with the L2 input, either due to their incomplete L2 knowledge or due to processing difficulties (e.g. when they have to de-/en-code input as fast as possible; cf. section 3.1.1).

4.1.3. Different L1 effects during different tasks

Given that the processes of production and comprehension differ in terms of their goals and mechanisms, the output might equally differ: we assume that during comprehension, L2 learners might rely on L1 comprehension strategies such as the 2nd Noun strategy observed in the case of English speakers (section 2.2.2.1), only if the L2 allows for such an interpretation; if not, the L1 strategy might only be used *occasionally* as a means of coping with difficulties (cf. 4.1.2).

During production, L2 learners will have to deploy some other strategies that can 'counterbalance' their insufficient L2 knowledge or the lack of control over the L2 knowledge (see also Chapter 3). The prediction is that L2 speakers will transfer their L1 production strategies more readily than L1 comprehension strategies[2]. It has to be stressed again that this hypothesis does not entail the assumption that performance

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[1] See also Kellerman's (1979, 1983) *psychotypology*, i.e. the learner's perception of the distance between the L1 and the L2; those parts of the L1 that are considered as irregular, infrequent, or semantically opaque, are perceived as *language specific* and are less transferable than the frequent and regular forms that are considered *language neutral* and are thus more likely to be transferred.

[2] Cf. opposite claims that constrains on transfer (of bound morphemes) are more relaxed during comprehension than during production (Odlin 1989: 83).

during comprehension has to be 'better' than performance during production (see also section 3.2.1).

Our last hypothesis relates to learners' judgments, for which we predict that they will not differ from native speakers', since L2 speakers will not base their judgments on the L1 grammar, if the L2 input cannot 'justify' transfer of L1 structure.

4.1.4. Different L1 effects at different developmental stages

A final point has to be made with respect to the L2 developmental stages: it has been argued (see Chapter 2) that the L1 influence is more apparent at the initial stages of L2 development and that as L2 learners become more proficient in the L2, instances of L1 transfer become rarer. But as we have seen, L1 transfer of processing mechanisms might also occur at the more advanced levels (Chapter 3). Hence, the hypothesis about transfer of L1 strategies is that it might be more frequent/apparent at the initial stages, but advanced learners could also transfer their L1 strategies depending on the situation (see ibid. for a discussion).

4.1.5 Which phenomenon?

In order to test the above hypotheses, we decided to investigate a syntactic phenomenon, which has also been studied by the majority of UG approaches and nearly exclusively by the CM, i.e. WO.

An additional reason for this choice is that WO is an interface phenomenon: a question that is also addressed in this research relates to the syntax-morphology interface, namely whether L2 speakers transfer their L1 agreement features (+/- weak) and if that kind of transfer has an effect of L2 performance in terms of WO choices.

It has been argued that V-movement correlates with the relative strength of inflection: languages with little overt agreement morphology do not allow lexical verbs to move, whereas languages with more morphological endings do; in other words 'strong AGR attracts the V, weak AGR does not attract V' (Haegeman 1994: 602; cf. the VF hypothesis in Chapter 2).

Additionally, case markers serve as 'pointers to relationships on more abstract levels of representation', fulfilling thus an indexical function (Tracy 1986:47). Although a correlation between freedom of constituent order and rich case morphology has been assumed in most traditional approaches, the reason we look at case morphology is not because we follow this assumption (cf. Tsiplakou 1999:2), but because we are interested

in the 'trade-off' between WO and morphology, which might help us understand the influence of L1 processing strategies on L2 performance.

The relation between WO and case morphology also allows for the investigation of transfer of L1 processing procedures, i.e. the strategies used for the interpretation of L2 (ambiguous) utterances and for the production of L2 speech.

For these reasons, we investigate the acquisition of a 'free-WO' language, namely Greek, by L2 learners at two different developmental levels, elementary and advanced, who come from two different L1 backgrounds, in order to have more conclusive results with respect to the L1 influence. The L1s are Albanian and English and were chosen on the basis of their dissimilar characteristics: Albanian is a 'free-WO' language, whereas English is a 'strict-WO' language; in Albanian (and Greek) but not in English, Verbs are inflected for person, number, and tense, and NPs are overtly marked for case, characteristics that might play a role in the acquisition of L2 morpho-syntax.

4.2. Word Order (WO) and case marking in Greek, Albanian and English

4.2.1. Greek

In typological studies, Greek is described as an independent branch of Indo-European and an SVO language (e.g. Greenberg 1963; Hawkins 1983, Mallison & Blake 1981). The issue of the 'basic'[1] Greek WO, however, remains a syntactic puzzle: it has been argued that the basic order in main declarative sentences is SVO (e.g. Drachman 1985), VSO (e.g. Philippaki-Warburton 1983, 1985, 1987; Tsimpli 1990, 1995), SVO *and* VSO (Horrocks 1983, 1988; cf. also Mackridge 1985). A flat representation has also been proposed, in support of the claim that no 'basic' order exists for Modern Greek (Catsimali 1990). Since our aim is not to provide evidence for a specific syntactic analysis, we will not enter into a discussion about the above proposals. Instead, we will discuss the syntactic/ pragmatic restrictions that have been claimed to determine the grammaticality of certain WO patterns in Greek.

[1] i.e. the most neutral and, intonationally and syntactically, least marked order (Lascaratou 1989: 22).

WO patterns are used to encode pragmatic distinctions such as that between Topic and Focus, or 'given' and 'new' information (Tsiplakou 1998: 3)[1]. In the case of SVO, the Subject can be either the Topic or the Focus of the sentence; moreover, the Object and the Verb could also carry focal stress (ibid.). Thus, this order is always grammatical, regardless of accent placement. VSO (10) and VOS (11) share this latter characteristic with SVO, i.e. focal stress can be on any of the constituents; they differ from SVO in that the Subject of the V-initial orders cannot be in Topic position (see Tsimpli 1990, 1995).

(10) idhe O KOSTAS ton ghiatro
IDHE o kostas ton ghiatro
idhe o kostas TON GHIATRO
saw the-Kostas.NOM the-doctor.ACC

(11) idhe ton ghiatro O KOSTAS
IDHE ton ghiatro o kostas
idhe TON GHIATRO o kostas
saw the-doctor.ACC the-Kostas.NOM

Conversely, OVS (12) and SOV (13) are grammatical when the Object is the Focus of the sentence[2].

(12) TON GHIATRO idhe o kostas
*ton ghiatro IDHE o kostas
*ton ghiatro idhe O KOSTAS
the-doctor.ACC saw the-Kostas.NOM

(13) o kostas TON GHIATRO idhe
* o kostas ton ghiatro IDHE
* O KOSTAS ton ghiatro idhe
the-Kostas.NOM the-doctor.ACC saw

---

[1] These terms, Topic and Focus, have been used differently in the literature; in this thesis we follow the rather 'model-free' definitions, i.e. topic: 'a part of a sentence seen as corresponding to what the sentence as a whole is about'; focus: 'an element or part of a sentence given prominence by intonation or other means. Usually where there is contrast or emphasis, or a distinction of new vs. given' (Matthews 1997: 380, 131).

[2] We are only referring to sentences without clitics; in OclVS/ SOclV, the clitic pronoun signals that the Object is not the Focus but because of its presence the sentence is grammatical.

The 'status' of OSV is a more puzzling issue, since it has been argued that it is ungrammatical 'irrespective of focal stress placement' (Tsiplakou 1989: 3). Tsiplakou justifies this assumption claiming that a preverbal object must be not only focused but also left-adjacent to the verb and this is why 'all OSV orders are ungrammatical' (ibid.:4). She further argues that OSV can only be grammatical if there is a clitic pronoun in which case the Object cannot be Focus; i.e. OSV is always ungrammatical but OclSV is not:

(14) ton ghiatro o kostas ton IDHE
ton ghiatro O KOSTAS ton idhe
*TON GHIATRO o kostas ton idhe
the-doctor.ACC the-Kostas.NOM him saw

Experimental evidence seem to contradict the claims about the ungrammaticality of OSV: findings from a grammaticality judgment task (during which native speakers of Greek (n=12) were asked to decide whether the Greek sentences presented to them in written form and out of context were grammatical or not) have indicated that native speakers consider OSV to be grammatical, since judgments for this order did not differ significantly from judgments for the other five orders (Mangana 1999, 2002).

It has also been found that native speakers of Greek (n= 34) consider OSV to be significantly less acceptable than SVO, VSO, VOS and OVS when presented out of context (Keller & Alexopoulou 2001); however, SOV was also less acceptable than SVO, VSO, and VOS. Moreover, Keller & Alexopoulou found that SVO is significantly more acceptable than the other five patterns; the higher acceptability of SVO vs. VSO and VOS was considered as an 'unexpected' finding (ibid.: 328), given the authors' theoretical assumptions, within Optimality Theory.

Based on these experimental results, we can conclude that the six possible WO patterns (SVO, OVS, VSO, VOS, SOV, OSV) are grammatical in Greek with different degrees of acceptability (see the distinction between grammaticality and acceptability in section 3.2.2). The possible reasons for the lower acceptability of OSV could be: a) the preference for preverbal Objects to be focused and left-adjacent to the verb (Tsiplakou 1998), and b) the fact that preverbal focus is considered more marked than postverbal focus (cf. Alexopoulou 1999; Tsimpli 1995; this could also account for the lower

acceptability for SOV and OVS which can only be grammatical if the Subject or the Object -respectively- are focused; see also the hypotheses in Chapter 7).

4.2.1.1. Morphology

As already mentioned, Greek is an inflected language: nouns and adjectives have fused endings indicating gender, number and case. Articles and pronouns are also declined. In Greek there are three cases: Nominative, Accusative and Genitive[1].

With respect to the forms of the articles, it is important to notice that the masculine (definite/ indefinite forms) and the feminine definite article distinguish between Nom and Acc, i.e. between Subjects and Objects, whereas the neuter articles (definite/ indefinite) have the same form for the two cases, both in singular and in plural (see Table 4.1).

	MASC		FEM		NEUT	
singular	*+def*	*-def*	*+def*	*-def*	*+def*	*-def*
NOM	o	enas	i	mia	to	ena
ACC	to(n)	enan	ti(n)	mia	to	ena
Plural						
NOM	i	-	i	-	ta	-
ACC	tus	-	tis	-	ta	-

Table 4.1: Definite and indefinite article in Greek.

In Table 4.1, we can also notice the syncretism among genders and numbers: *i* can be either feminine singular/plural, or masculine plural; although plural and singular forms are written in different ways, we take the oral forms to be more important, mainly because L2 learners have serious problems with the Greek writing system, which, for example, has 6 ways for the writing of sound /i/: *η, υ, ι, οι, ει, υι*; the choice is not always grammatically justified and this could additional reason for the 'confusion' of L2 learners (cf. Tracy 1986: 53).

The complex morphological system of the noun endings is depicted in Figure 4.1.

[1] There is also Vocative, which does not have a syntactic role in the sentence; some Vocative endings are presented in Figure 4.1.

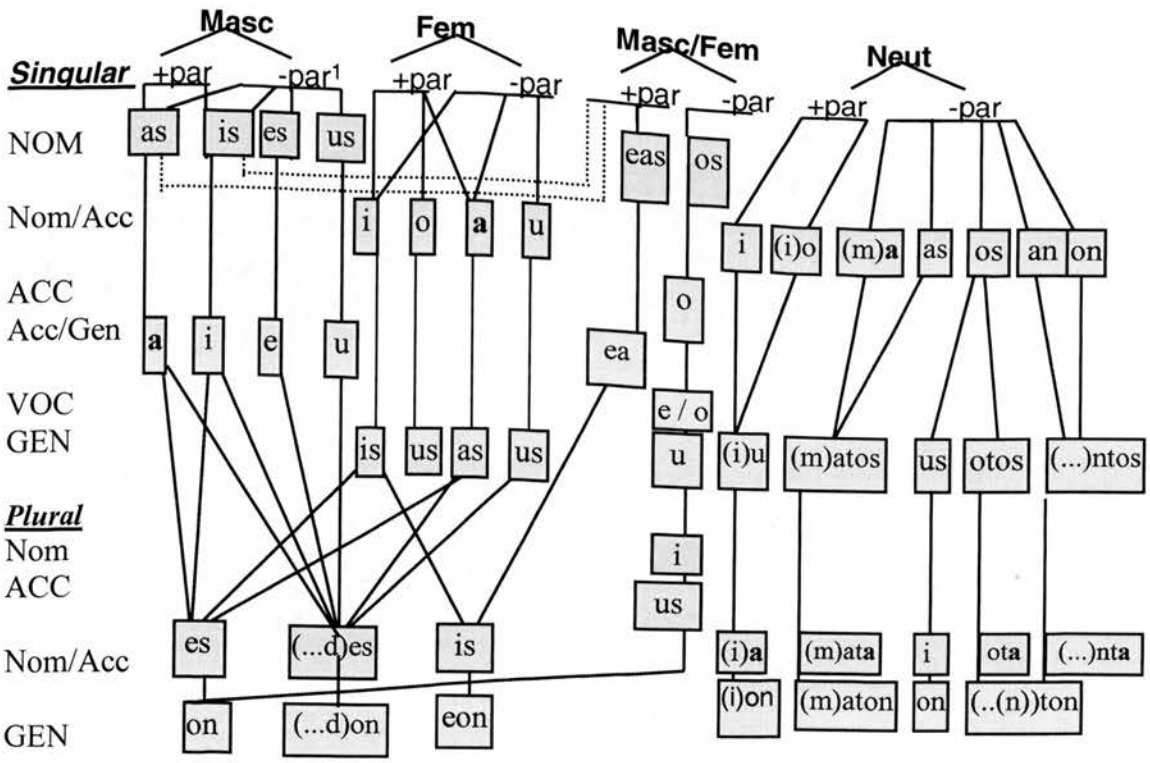

Figure 4.1: The sounds of Greek noun endings (from Mangana 1999).

It is important to notice that the majority of feminine nouns (the exception being nouns that end in *-os*, e.g. *odhos 'street'*) have the same endings in Nom and Acc; the same holds for all neuter nouns. If we add to that the observations about the forms of the definite article (Table 4.1), we can conclude that there might be sentences in which the Subject and/or the Object cannot be identified via morphology (e.g. (15)). In such case of ambiguity due to syncretism, it has been found that Greek speakers deploy a S-first strategy (i.e. the first NP is taken to be the Subject; see section 2.2.2.1) when the context does not help either the interpretation of the sentence.

(15) aghapai to koritsi to aghori

loves the- girl-neuter.NOM/ACC the- boy-neuter.NOM.ACC

'the girl loves the boy' or *'the boy loves the girl'*

[1] Parisyllabic (+par) are those nouns that have the same number of syllables in all cases and in both numbers; unparisyllabic (-par) are nouns that have one more syllable either in all plural forms and/or in one of the singular/plural case forms (usually genitive; see, e.g. Kleris & Babiniotis 1996).

Verbs in Greek are also inflected: fused endings indicate person, number and tense. There are two voices, active and medio-passive, which do not directly relate to active and passive meaning. Verbs belong to different morphological groups (3 in active and 4 in passive voice) depending on their ending in 1st person singular of present tense. There are 8 tenses (present, past simple/continuous/perfect, future simple/continuous/perfect, and present perfect); it has to be stressed that there is only one present tense (pezo *'I play'* and *'I am playing'*).

4.2.1.2. Frequencies

According to corpus studies (Lascaratou 1984, 1989; Tzanidaki 1995), SVO and OVS are the most frequent patterns in written data[1].

	SVO	OVS	VSO	VOS	SOV	OSV
N of active clauses	1246	219	27	19	19	10
relative %	81	14	2	1	1	1

Table 4.2: WO frequencies in a written corpus (total n of active sentences: 2530; total n of corpus sentences: 6055; adapted from Lascaratou 1989: 42).

With respect to noun frequencies, in a small corpus study (Mangana 1996) it was found that from the total n of 592 nouns of the text that was analysed (Greek novel) the most frequent were neuter nouns ending in *–i* (n= 145; e.g. krevati *'bed'*), followed by feminine nouns ending in *–a* (n= 103; e.g. karekla *'chair'*), followed by masculine nouns ending in *–os* (n=77; e.g. tihos *'wall'*). With respect to case frequencies, overall Acc was the most frequent case (n= 303; 51%), followed by Nom (n= 192; 32%), which is not surprising since Greek is a pro-drop language.

It needs to be stressed, however, that these frequencies were found in written production, which might differ from frequencies found in oral production, especially in the case of WO patterns[2]. Unfortunately, no such corpus exists for Greek that could be accessible to us.

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[1] In another corpus study, which investigated the position of the Subject in active intransitive sentences, it has been found that VS order represents 59.47% of the data whereas SV 40.26% (Gavriilidou 1987).

[2] With respect to case frequencies the novel that was analyzed was in dialog form and that was why it had been chosen among others (*Από δω πέρασε ο Κιλρόι,* Δ. Χαριτόπουλος; see Mangana 1996 for details). Lascaratou's corpus consists of formal statutes and judgments, newspapers and novels (see Lascaratou 1984 for details).

4.2.2. Albanian

Albanian, 'an eastern language found in what is basically Western territory' (Ruhlen 1987: 54), is an independent branch of Indo-European, spoken in Albanian and adjacent areas by roughly 4 million people (ibid.: 36-7; Comrie 1989: 248). It consists of two dialects, Geg (northern), and Tosk (southern), 'the former being less typically Balkan than the latter' (Comrie 1996: 205). These dialects are not mutually intelligible, but it terms of WO no differences have been mentioned in typological studies. Standard Albanian is based on the Tosk dialect. Albanian is characterized as an SVO language (e.g. Hawkins 1983).

It has been argued that 'Albanian and Greek are so-called free word order, null subject languages with reach morphology' (Kallulli 1999: 14). Thus, different orders are possible in Albanian too (e.g. 16-20).

(16) SVO: mësusja shikon nxënësin
the-teacher.NOM looks the-student.ACC
'the teacher is looking at the student'

(17) VSO: shikon mësusja nxënësin
looks the-teacher.NOM the-student.ACC
'the teacher is looking at the student'

(18) VOS: ngriti folenë nje zog i kaltër[1]
built net.ACC a -bird.NOM blue
'a blue bird built a nest'

(19) OVS: lulet solli jani[2]
flowes.ACC brought Jani.NOM
'Jani brought the flowers'

(20) SOV: jani diçka do
Jani.NOM something wants
'Jani wants something'

We need to report here that some of our Albanian informants[3] questioned the acceptability of V-initial orders: one of them claimed that VSO can be used for

[1] The example is from an Albanian song, cited in Kiriazi 1994.

[2] The example is form Kallulli 1999: 54

[3] Albanian informants were students at the University of Athens, studying Greek as a foreign language; there was also one postgraduate student who was attending an M.A. course in 'Teaching of Greek as a Foreign Language', at the University of Athens too.

questions, whereas other informants argued that it is not 'as good as' SVO. One of our informants noted that 'people from the village would say such utterances'. None of our informants, however, questioned the grammaticality of this order.

With respect to the grammaticality of OSV, similar problems seem to exist for Albanian to those mentioned for the analysis of Greek. Thus, it has been argued that 'in Albanian -and Greek- direct object fronting to Spec of CP is ungrammatical if subject-verb inversion fails to obtain' (ibid.: 55), and therefore, Kallulli argues, sentences like (21) are ungrammatical in both languages.

(21) a. *LULET jani solli[1]
flowers.ACC Jani.NOM brought
b. *TA LOULOUDIA o janis efere
flowers.ACC the- Jani.NOM brought
'John brought the flowers'

However, in the case of Greek we have seen that experimental evidence contradicts claims about the ungrammaticality of OSV (see previous discussion on Greek). Similarly, we could argue that OSV is less acceptable but not ungrammatical in Albanian (as discussions with our Albanian informants suggest). Moreover, Kallulli claims that OSV is grammatical both in Albanian and Greek only when clitic pronouns are present in the sentence (cf. section 4.2.1):

(22) a. lulet jani i bleu[1]
flowers.ACC Jani.NOM them bought
b. ta luludhia o janis ta aghorase
the-flowers.ACC the-Jani.NOM them bought
'Janis bought the flowers'

Conversely, in the case of SOV, we do not have the same constraints in the two languages: examples (20) and (23) might differ in terms of their acceptability, as discussions with our Albanian informants seem to suggest. It could be the case that this difference relates to the use of definite or indefinite NPs vs. indefinite pronouns.

(23) ?? jani librim do
Jani.NOM book.ACC wants
'Jani wants the book'

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[1] Examples from Kallulli 1999: 58.

However, the degrees of definiteness that also relate to the issue of focal stress[1], could be an additional factor affecting the acceptability of SOV in Greek too: thus, examples (24a) and (24b) are different in Greek too.

(24) a. o kostas kati theli

the-Kostas.NOM something.ACC wants

'Kostas wants somebody'

b. o kostas ton ghiani theli

the-Kostas.NOM the-Yannis.ACC wants

'Kostas wants Yannis'

Since it is not our aim to explain the differences in the acceptability of Albanian SOV sentences, and given that detailed research is required in native Albanian (as well as with native speakers of Greek too), for the time being suffice it to say that V-final orders are possible in Albanian too, possibly with varying degrees of acceptability: OSV (in the absence of clitic pronouns) and SOV (in the presence of definite NPs) can be (highly) dispreferred.

A difference between Greek and Albanian WO is that in Albanian adjectives – except numerals and certain quantifying expressions– and dependent nouns follow the noun they modify; there is also a particle that precedes them which agrees with the noun (example (18)).

4.2.2.1. Morphology

Kallulli (1999:14), while comparing Albanian and Greek, refers to the WO similarity between the two languages along with the similarity of the case system:

> 'Both languages have identical case systems, except for the fact that the Greek counterpart of the Albanian dative is genitive. That is, both Albanian and Greek have distinct morphological nominative and accusative case, but while Albanian has dative case, Greek only has genitive case'.

There is, however, a more important difference between the two languages: in Albanian, the definite article is a morphological ending (not a free word as in Greek), which is attached to the indefinite theme of the noun. Hence, for each noun, there are two declensional paradigms: one definite (*lakim i shquar*) and one indefinite (*lakim i*

[1] Of relevance might be here Georgiafentis' (2004) distinction between information focus and contrastive focus and his argument that both types affect WO variation since focusing requires either p-movement in the first case or movement to [Spec FocP] in the latter case.

pashquar; Spirou 2003: 25). As for grammatical genders, it has been argued that in Albanian there are only two genders, masculine and feminine, since neuter gender is restricted to a relatively small number of nouns and there are no neuter adjectives, pronouns, ordinal numbers, or 'verbal nouns' (ibid: 25-6).

(25) a. masculine nouns: mal/ mali (*mountain/ the mountain*); breg/ bregu (*shore/ the shore*)

b. feminine nouns: fushë/ fusha (*field/ the field*); lule/ lulja (*flower/ the flower*)

c. neuter nouns: ujë/ ujët (*water/ the water*)

Syncretism is also found in the Albanian noun system, among cases, numbers and genders (see Table 4.3). It is important to notice that in the case of the indefinite declensional paradigm, Nominative and Accusative endings are identical in the masculine and feminine paradigms; in the case of neuter nouns, Albanian is like Greek, since the same forms are used for Nominative and Accusative case, both in the definite and the indefinite declensional paradigm.

	Masculine : Declension A'		Masculine : Declension B'		Feminine : Declension C'		Neuter : Declension D'	
singular	*-def*	*+def*	*-def*	*+def*	*-def*	*+def*	*-def*	*+def*
NOM	-lë-/-∅-	-i	-∅-	-u	-lë-/-le-	-(j)a	-ë-/-∅-	-(ë)t(ë)
ACC	-lë-/-∅-	-in	-∅-	-(i/u)n	-ë-/-e-	-n	-ë-/-∅-	-(ë)t(ë)
Plural								
NOM	-a-/-e-		-a-/-e-		-a-/-e-			-
ACC	-ë-/-∅-	-t(ë)	-ë-/-∅-	-(i)t(ë)	-ë-/-∅-	-t(ë)	-t(ë)	-

Table 4.3: Grammatical markers of definite and indefinite forms of Albanian nouns (-def: indefinite; +def: definite; adapted from Spyrou 2003: 27).

In Albanian, verbs belong to three different groups (*zgjedhim*; Spyrou 2003), depending on their ending on the 1st person singular of the present tense. However, unlike Greek, syncretism is very frequent in the Verb groups too: thus, the 2nd and 3rd person singular of the present tense are the same in all groups, whereas some verbs that belong to the second group and all verbs of the third group have the same ending for 1st, 2nd and 3rd person singular of the present tense (ibid.: 46-7). With respect to the present tense we have to note than in Albanian, as in Greek, there is only one present tense; however, Albanian has a more complex verb morphology than Greek (6 modes, vs. 3 in Greek; ibid.: 54).

4.2.3. English

Typologically, English is a West-Germanic language, with a basic SVO order (e.g. Mallison & Blake 1981, Comrie 1996). Although we have characterized English as a 'strict-WO' language (e.g. in section 4.2), left- dislocation (26) and topicalization (27) result in grammatical sentences which are not in SVO order[1].

(26) *Detective stories, I have never liked them*[2]

(27) *Detective stories, I have never liked*

Nouns and articles are not inflected; regular verbs have a different ending only for the 3rd person singular in present continuous. There are two present tenses, present simple and present continuous.

4.3. Research hypotheses

In order to test the hypotheses outlined in 4.1, along with some more specific ones that relate to each of the three processes, we ran three experiments: a production experiment, a comprehension experiment and an acceptability judgment experiment. Experiments were designed at the same time, and in that respect none of them is 'built' on findings from the other(s). The ultimate goal was to compare findings from the three experiments in order to have the full picture of L2 performance.

The hypothesis that 'connects' the three experiments is that L2 speakers will accept WO patterns that they do not produce as well as WO patterns that they find difficult to interpret. Additionally, utterances that are hard to produce might not be hard to interpret. We assume that these discrepancies are due to difficulties with the L2 morphology, as well as due to difficulties with the new –in the case of English learners– mechanisms of constituent movement that have to be automatized (cf. section 4.1). Such difficulties might result to L1 transfer at the processing level.

Transfer of L1 strategies might be more prominent in cases of ambiguous or difficult to parse input (cf. section 4.1.2). Input can become difficult to parse in cases of insufficient L2 lexical knowledge or in case where the identification of syntactic relations cannot be achieved on the basis of the L2 morphological knowledge, either because L2 speakers have not yet fully acquired the morphological case system of the L2 or because their knowledge is not automatized yet.

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[1] Also cf. the ADV-V-S order in the case of intransitive verbs, e.g. *here comes the bus*.

[2] Examples from Haegeman 1994: 426.

Such parsing difficulties might affect all three tasks, but we have assumed that production is a more demanding process and that time pressure might also make a comprehension task more difficult for L2 learners than an acceptability task (section 4.1.3). Since we have also assumed that L1 transfer is more possible to occur in overload situations, we expect to find a clear L1 effect during production, which in the case of English speakers would mean a strictly SVO production, a more conditional L1 effect during comprehension, i.e. possible transfer of the English 2nd Noun strategy in the case of V-initial ambiguous (but not unambiguous) L2 utterances, and no L1 effect on WO preferences during acceptability judgments, i.e. no difference between English and Albanian speakers of Greek.

4.3.1. Comprehension experiment

More specifically, the aim of the comprehension experiment is to investigate

a) whether L1 interpretation strategies are deployed during L2 comprehension; and
b) whether the L1 characteristics effect the accuracy of L2 utterance interpretation.

With respect to transfer of L1 strategies, we investigate the interpretation of L2 ambiguous and unambiguous utterances. Sentences can be ambiguous if the morphological system of the target language does not always distinguish between Subject case and Object case, like in the case of Greek neuter nouns. Thus, a NVN sequence, for example, could be interpreted either as SVO or as OVS, if the gender of both nouns is neuter.

Our hypothesis was that Albanian learners of Greek will transfer their L1 strategies, if they believe that the two language systems are similar. Conversely, if English learners have realized that the L1 and the L2 structures differ, they will not transfer their L1 comprehension strategies. However, we would also assume that since the L2 offers two options (e.g. VSO and VOS interpretation in ambiguous VNN utterances), English speakers of Greek would 'prefer' the one that is also plausible in their L1, i.e. the VOS interpretation.

Hence, in the case of English speakers of Greek, there are two possible scenarios with respect to the interpretation of ambiguous utterances: if English learners follow the assumption that the two language systems are different, they might not deploy an L1 parsing strategy for the different L2 input, i.e., they might not 'prefer' a VOS interpretation for VNN ambiguous utterances. Conversely, English learners might adopt

an L1 interpretation strategy since the L2 offers two possibilities, one of which is the well-automatized L1 strategy, in which case they will prefer a VOS interpretation.

With respect to unambiguous utterances, where only one interpretation is possible, we predict that English learners will not deploy their L1 strategies and that they will base their interpretations on the morphological indications that case markers offer. However, learners might *occasionally* resort to the L1 strategies, even if they have assumed a different analysis for the L2, in order to overcome difficulties with the L2 input in over-loaded situations (cf. sections 3.1.1 and 4.1).

4.3.2. Production experiment

Moreover, the main aim of the production experiment is to investigate

a) whether L2 speakers produce WO patterns that are not grammatical in their L1; and
b) whether certain contexts affect the frequency in which certain WOs are produced.

Based on the hypothesis that whenever the L2 offers more than one option learners will adopt their L1 closest equivalent (section 4.1), we predict that English learners of Greek will 'prefer' the WO that is grammatical in their L1, since the process of producing such utterances is 'mature' in their L1 as opposed to the newly acquired process of moving constituents in the sentence. Thus, we assume that English learners will produce more SVO utterances than Albanian learners, who might be able to produce a variety of WO patterns in the L2. However, given the assumptions about the difficulties that lexical knowledge and morphology create (sections 3.2 and 4.1), it is also possible that Albanian speakers of Greek might resort to some other strategies (neither L1- nor nativelike), the result being a rather strict performance during production.

4.3.3. Acceptability judgment experiment[1]

The aim of the acceptability judgment experiment is also twofold, i.e. to investigate

a) whether L2 speakers transfer their L1 structure while judging L2 sentences; and
b) whether case marking and conceptual accessibility influence WO preferences.

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[1] we use *acceptability judgment* to refer to this task for the additional reason that all WOs are grammatical in Greek but not equally acceptable (see also sections 4.2.1 and 3.2.2).

Our hypothesis is that English learners, as soon as they realize the flexibility of the L2 WO, i.e. as soon as they are able to distinguish Verbs from Nouns in the L2 input (which will allow them to reset the strength of the agreement features), they will be able to 'notice' the difference between the two language systems, and they will not transfer the properties of their L1 while judging the L2 sentences. Conversely, Albanian learners might transfer their L1 settings, if they assume that the two systems, i.e. the L1 (Albanian) and the L2 (Greek), are similar in terms of WO flexibility.

4.4. Participants

The information presented in the following sections about the participants' profiles was elicited by means of two different questionnaires, one for the control group and one for the L2 groups (Appendix I). All participants answered the questionnaire either in English or in Greek. Elementary speakers were helped by more fluent speakers of Greek (in most cases by the researcher). Participants' ages ranged from 19 to 45 years, they were all linguistically naïve (i.e. not linguists/ students of linguistics), and in the case of native speakers lived in monolingual families.

4.4.1. Control group

The 18 Greek participants that formed the final control group lived in Athens. There was only one participant who had lived in Australia in the past, but his z-scores and the inspection of overall performance did not prove that he was an outlier (see the relevant discussions about outliers in the next 3 chapters). All participants were born/raised in monolingual families. 8 of them were men and 10 women. Their age ranged from 19 to 36 years old (mean age: 27). Their occupations covered a wide range of professions, such as baby-sitter, doctor, salesperson, taxi driver, policewoman, etc. All of them spoke English, but the self-assessment of their L2 proficiency ranged from 'basic knowledge' to 'fluent speaker'. None of them had a very close relationship with non-native speakers of Greek and none of them was using English in their working environment or on an everyday basis. Six participants spoke other languages too (French, German, Italian, Spanish, Portuguese and/or Dutch).

4.4.2. L2 groups

In order to determine whether the L2 speakers of Greek belong to the two level groups we intended to investigate, we used the results from the entry tests that students take at the University of Athens, in the Centre of Modern Greek language as a foreign language. This placement test is administered at the beginning of each semester, i.e. when new courses start. Since nearly all of the elementary speakers were studying Greek at the University at the time that the research was carried out, we used the results from these tests in order to avoid additional trials especially for the elementary learners who participated in the research, since the whole task of completing 3 experiments was very demanding for them.

For participants that were not students at the University, we used one part of the placement test in order to assess whether their level of L2 proficiency was 'compatible' with the level of proficiency of our advanced University students (see Appendix I (4) for an example). As for elementary learners, the 'pre-test' that was given to them accessed their lexical knowledge and their ability to produce L2 sentences (see Appendix I (3) for an example).

4.4.2.1. Albanian elementary

Of the Albanian elementary (AeG) learners, 3 were men and 15 women. Their ages ranged from 18 to 25 years (mean age: 21). They have been living in Greece for at least 3 months up to 8 months (mean time: 5.2 months). All of them were taking Greek lessons at the period that the experiments were run. None of them was working. None of them was married to a Greek person but the majority (n= 16) lived with Greeks, as they were students of a military school in Athens (Σ.Α.Ν.). None of them had visited Greece in the past. The main reason they were studying Greek was that they wanted to study in Greece.

All Albanian elementary participants spoke Italian and/ or English; their self-assessment of their knowledge of these languages varied from 'basic' to 'fluent speaker'.

4.4.2.2. Albanian advanced

Of the Albanian advanced (AaG) learners, 7 were men and 11 women. Their ages ranged from 20 to 34 years (mean age: 25.3). They have been staying in Greece for at least 6 months up to 10 years (mean time: 4.63 months). Those who had been living in Athens for less than a year had visited and lived in Greece for short periods of time in

the past. 10 of AaG speakers were working in Athens at that time, and they were speaking Greek in their working environment. The professions varied: taxi driver, waitress, worker, builder, research assistant, salespersons, cook. They had all taken lessons in the past or they were taking lessons at the period that the experiments were run. None of them was married to or lived with a Greek person/ family, but they all had Greek friends/acquaintances with whom they communicated in Greek. The reason they have learned or were still learning Greek was because they wanted to work, or they were working in Greece.

Two participants of this group spoke no other foreign languages. Of the rest, only three did not speak any English and only three did not speak any Italian; additionally, there were some speakers who spoke French, German and Spanish. Their self-assessment of their L2 knowledge varied from 'basic' to 'fluent speaker'.

4.4.2.3. English elementary

Of the English elementary (EeG) learners, 5 were men and 13 women. Their ages ranged from 21 to 45 years (mean age: 27.6). They have been staying in Greece for at least 1 month up to 7 years (mean time: 17.4 years).

Despite this huge diversity in their ages and the time of residence in Greece, all EeG speakers who participated in the research were 'comparable' with respect to their L1 knowledge (placement test/ pre-tests), a factor that was considered as more important than the time they have been living in Greece, since this latter factor does not always guarantee exposure to the L2 input: the 6 EeG speakers who had been living in Athens for 2 (n=3), 4 (n=1), 4.5 (n=1) and 7 (n=1) years were living alone or with their English families, they were working as teachers of English in private schools and they did not speak any Greek in their everyday communication. We also interviewed other people (n=4) who had been staying in Athens for less than a year, in a attempt to replace those 6 individuals, but those interviewed were at a beginner stage rather than at the elementary, as the rest of the participants in this group. As for the one learner who had been in Athens for one month only, he had been to Greece in the past and his previous total time of residence in the country was 4 months.

Only 2 of the EeG speakers were not taking Greek lessons at the period that the experiments were run. Only 2 EeG speakers were not working. None of the participants was married to a Greek person and none of them lived with Greeks. When asked about the reason they were learning Greek the most frequent answer was 'because I live here'.

Of the 18 EeG participants, 5 did not speak any other L2 and 4 spoke only French; 8 EeG learners spoke Irish, German, Spanish and/or Dutch; their self-assessment of their knowledge of these languages varied from 'basic' to 'very good'; only one person claimed that he could speak fluently another L2 (German).

4.4.2.4. English advanced

Of the English advanced (EaG) learners, 8 were men and 10 women. Their ages ranged from 25 to 42 years (mean age: 33.4). They have been staying in Greece for at least 2 up to 18 years (mean time: 8.9 years).

Only 4 of the EeG speakers were taking Greek lessons at the period that the experiments were run. Only 2 were not working; the professions of those who were working were the following: English language teachers, Greek-English translators, architect, insurance manager, fashion designer. 6 participants were married to a Greek person and the reason they have learned Greek was so that they could communicate with their Greek families. Other participants also noted that they wanted to communicate with Greeks. None of them was sure that they wanted to study in Greece.

Of the 18 EeG participants, 5 did not speak any other L2, and 4 spoke only one other language (either French, Spanish or German); the other EeG learners spoke German, Spanish, Italian, and/or Serbo-Croatian; their self-assessment of their knowledge of these languages varied from 'basic' to 'very good'; only two participants claimed that they could speak fluently another L2 (Italian in both cases).

4.5. Summary

In this Chapter we presented the research hypotheses and we discussed possible outcomes. We described the properties of the three languages involved in this study that might influence the processes of L2 comprehension, production and acceptability judgments. Finally, we presented participants' profiles.

Chapter 5

Comprehension experiment

In Chapter 4 we outlined the hypotheses of the comprehension experiment, which is presented in this Chapter. As already mentioned, the general aim of this experiment is to examine whether L2 learners from different L1 backgrounds, at different levels of L2 proficiency, interpret WO patterns of Greek in a nativelike way, and, if not, whether differences in the L2 performance provide evidence for the hypothesis that L1 strategies are operant during L2 processing. We also examine whether the characteristics of the L1 affect L2 performance. The ultimate goal is to compare the findings from this experiment with the findings from the other two experiments (production, judgment) in order to have the full picture of the L2 performance at distinctive stages of L2 development.

We begin with the research hypotheses and we describe the method of the experiment. We then present results, starting from the control group and moving to the L2 groups in alphabetical order: Albanian groups and English groups. in each case we look at three dependent variables: Subject assignment of 1^{ST} NP, errors, and RTs. Finally, we compare all L2 groups before we draw the general conclusions about L1 transfer of interpretation strategies and the possible influences of L1 structure/characteristics during the whole process.

5.1. Research Hypotheses

5.1.1. Subjects before Objects

The first, general assumption could be that any speakers will find it more difficult to interpret sentences where the Object appears before the Subject, since these -OS- constructions 'violate' a processing preference: from Bever's (1970) perceptual strategy to VanPattern's (1996: 32) input processing principle, theorists seem to agree that the

role of the agent is preferably assigned to the first encountered NP of a sentence, and the role of the 'patient to the 'next-to-appear-NP'.

In general, this preference would produce a preference for grammatical Subjects to precede grammatical Objects. Our hypothesis for comprehension could thus be that native speakers will interpret a morphologically unmarked -NN- sequence as -SO- rather than -OS-. This hypothesis is in accordance with findings from previous research, which indicated that native speakers of Greek observe a S-first interpretation strategy when morphological information does not help for the identification of grammatical functions (Kail & Diakogiorgi 1995, presented in section 2.2.2.1).

Regarding the L2 groups, we would like to see whether the L1 strategies are used during L2 processing. In the case of the English speakers, sentence interpretation experiments have shown that there is an -SO- preference only in NVN sentences, which could be translated as an SVO strategy, whereas there is a -OS- preference in VNN sentences (the 2nd NP strategy discussed in section 2.2.2.1). For English speakers of Greek that would mean that they will 'prefer' an -OS- interpretation in the case of V-initial ambiguous utterances and an -SO- one in V-middle. If, on the other hand, neither the L1 nor the L2 strategy is used, then we could expect that L2 speakers from different L1 backgrounds will perform in a similar way, but not nativelike, as they will deploy not an L1 but an 'interlanguage' (IL) strategy. We would then predict that English and Albanian speakers of Greek will perform identically.

With respect to the level of proficiency, a plausible hypothesis could be that the elementary groups will differ from the advanced and native, if they make use of their L1 strategies and if advanced learners have moved towards the target-language way of processing.

5.1.2. S-first preference and Case Marking

When a language marks case, morphology should take precedence over WO. That is, if a clearly marked Object is encountered before a Subject, then the first NP will not be taken as the Subject NP. If the first encountered NP is not marked for case (neuter article/ noun), however, one could assume that some errors might arise, i.e. the neuter, unmarked NP will be 'prematurely' assigned a Subject role. In that case, participants will make more errors in sentences in which the first encountered NP is not marked for case and the second one is (SVO/ VSO- Omark and VOS-Smark types) than in cases where the first NP is marked either as the Subject or as the Object of the sentence (cf.

Kail & Diakogiorgi in section 2.2.2.1). If learners do not assign the Subject role to the first encountered, ambiguously marked NP, then we will find no difference in the error rates between these sentences and sentences in which at the first encountered constituent is marked for its grammatical function.

Moreover, as we have already seen, neuter Nouns are ambiguously marked for case. Thus, we will definitely be able to see whether there is a S-first preference in sentences where both NPs consist of neuter nouns and articles. The interpretation of all NP_{neuter}-NP_{neuter} sequences as -SO- could provide evidence for the existence of a 'S-first' preference. If such a preference does not exist, then we will only find random Subject assignments in all ambiguously marked sentences.

In terms of the L1 effect, there are two possible hypotheses with respect to the English learners of Greek:

a) English learners will not differ from native speakers of Greek, as they will both use a S-first strategy both for V-middle and for V-initial utterances. As already mentioned in section 4.3.1, this could happen if English learners have realized that the L2 has a different structure for the L1 and therefore, they might not transfer their L1 interpretation strategies.
b) the two English groups (elementary and advanced) will perform like monolingual English speakers do, i.e. they will prefer an -OS- interpretation in the case of ambiguous V-initial orders only: since the L2 offers two possibilities (VSO and VOS interpretation), English speakers of Greek might 'prefer' the well-automatized 2nd Noun strategy.

As for the Albanian speakers of Greek, in the absence of previous studies that could guide our hypotheses with respect to their L1 processing preferences, we will assume that they will behave more like the Greek natives, since the two languages are very similar in terms of WO flexibility and morphological properties (section 4.2). Additionally, they are both '-SO-' languages and they both use morphology as a means to decode grammatical functions.

5.1.3. Word Order and Case Marking

The hypothesis that follows from the S-first preference is that -SO- patterns will be easier (correct interpretation, fast RTs) than -OS- patterns. Since both SVO and VSO meet this criterion, we do not expect to find no significant difference between the two patterns.

Moreover, the S-first preference we assumed for the Greek speakers and the 2nd Noun strategy that has been found in English (native and bilingual) processing (section 2.2.2.1), might also have an effect on the interpretation of certain unambiguous utterances. If the first NP of the utterance is assigned the role of the Subject as soon as it is encountered, i.e. without taking into consideration the (marked) NP that comes after it, then errors will occur in the utterances with an -OS- order in which only the Subject is marked (VOS-Smark type).

As for English speakers of Greek, again there are two possible scenarios:

a) they will *not* (over-)use their L1 interpretation strategy (that they might deploy for the interpretation of ambiguous utterances; see 5.1.2) because they have 'realized' the difference between the two language systems.
b) they might transfer their 2nd Noun strategy for the interpretation of both ambiguous and unambiguous utterances, if they have assumed that the L1 and the L2 bear some similarity, i.e. if in both languages there is a VP node, which would allow them to use their L1 interpretation process which would be the following:

> 'If a V immediately precedes NP in the linear parser string (as in English), then the V will first construct its mother node, VP, and NP can then be attached to this mother' (Hawkins 1990: 277).

In Greek, however, an initial V does not allow listeners to construct a VP node, because either the Subject or the Object might follow. We, thus, believe that the second scenario, which predicts transfer of the L1 processing mechanism in all cases, is not as plausible as the fist one, because English speakers, especially at the advanced level will have been exposed to L2 input that 'signals' the difference between the two language systems (cf. section 4.1).

The prediction for the Albanian speakers could be that they will not overuse either an -SO- or an -OS- strategy for the interpretation of V-initial orders, since in their L1

both interpretations are possible and they already 'know' that they have to use the morphological markers in order to identify grammatical relations.

On the other hand, given the morphological complexity of the L2 system, and since both groups of learners have to acquire (new) case endings, we could assume that L2 learners from both language groups might resort to some (L1) strategy in order to cope with the difficulty posed by the morphological paradigms that could be greater during an on-line task. The result in that case would be less accurate interpretations which, nevertheless, will not be random: L2 speakers might interpret VSO orders as VOS (English group) or VOS orders as VSO (Albanian group, if they have a S-first strategy like the Greek group).

As for the effect of Level, a plausible hypothesis is that, overall, elementary groups will perform worse than the advanced, due to insufficient knowledge of the morphological system of the target language, which is the means of identifying Subjects and Objects in most cases. Such a result might also mean that L1 transfer is mostly apparent in the early stages of L2 acquisition. We, thus, expect elementary learners to make more erroneous Subject assignments, regardless of WO and case marking. Again, if speakers transfer their L1 strategies, we expect to find either more errors either in VOS patterns (Albanian) or in the VSO patterns (English).

5.1.4. Summary of the hypotheses and possible scenarios

The above hypotheses and scenarios could be summarized as follows:

Native group

A S-first preference will guide native speakers' interpretation of ambiguous sentences: the Subject role will be assigned to the 1st NP of the sentence whenever case marking permits such an interpretation. The preference for -SO- order might also result in faster RTs for SVO and VSO than for VOS orders (cf. Kail & Diakogiorgi 1995, discussed in section 2.2.2.1).

L2 groups

If L1 strategies are operant during L2 processing, English speakers of Greek will exhibit the '2nd Noun strategy' that has been found in previous research (section 2.2.2.1). We assumed that his strategy will only be used for the interpretation of ambiguous utterances, because the L2 allows for two possibilities (cf. section 4.1), and that English speakers will not transfer their L1 strategy in the case of unambiguous utterances.

However, the 2nd Noun strategy might be transferred *occasionally* wherever the identification of the grammatical roles via case markers would be problematic, due to insufficient control over the L2 morphological knowledge, i.e. at the less advanced levels of L2 proficiency (section 3.1.1).

A similar hypothesis could also be made for Albanian speakers of Greek, who, despite the fact that their L1 is an inflected language, they will have to acquire the Greek morphology in order to interpret accurately the L2 input; thus, if their morphological knowledge does not allow for the accurate interpretation of the L2 utterances, they might resort to some strategy in order to cope with the task, the result being erroneous interpretations of the L2 utterances.

The L1 might have an effect on RTs too: in the case of English learners, faster RTs for SVO than for the V-initial orders are expected, especially at the elementary level, since the process of interpreting V-initial orders might not be automatized yet. For this reason, we predict that the RTs of the English elementary group will be significantly slower than the RTs of all other groups in the case of V-initial utterances (cf. Kilborn 1989, discussed in section 2.2.2.2).

If English learners differ from Greek native but not from Albanian learners, that could possibly mean –depending on the pattern of non-native performance– that there is some IL strategy which differs from the target language and is not directly influenced by the L1.

5.2. Method

5.2.1. Participants

For participants' profiles see section 4.4.

5.2.2. Materials

The 9 verbs that were used in the experimental utterances differ in terms of the theta-roles assigned to their Subjects (agent, experiencer) and Objects (theme, patient, experiencer; cf. Appendix II). By looking at the grammatical Subject, we aimed at focusing on clearly syntactic preferences and draw some more specific conclusions about the syntactic strategies that L2 speakers may deploy during L2 processing. Verbs also differ in terms of the kind of complements they can get: although all of them can be

used as transitive verbs, only some of them can take NPs and CPs as Objects. Moreover, some of them can be used as intransitives too, with a difference in meaning, i.e. difference in the thematic role of the Subject.

Verbs were pre-tested in order to make sure that there was no preference for one syntactic frame over the other (transitive vs. intransitive) or for one type of Object over the other (see Appendix 1). This way we could be certain that any delays in the responses would not be due to listeners' expectations for an intransitive use of the verb or for some other preference. The 18 native speakers of Greek[1] who participated in the pre-test were asked to write one sentence for each verb that was written in 3rd person singular of present tense on the left side of a piece of paper. No fillers were used in the pre-test. Native speakers showed a very strong preference for the transitive construction (minimum: 82%; maximum: 100%; mean: 91%). 87% of the sentences that the native speakers produced were transitive with an NP as an Object (rather than a pronoun or a subordinate clause – in cases that both options were possible; see Appendix II).

Moreover, in order to choose the NPs that would be used in ambiguous utterances (i.e. the neuter nouns that are syncretized in Nom and Acc case), we ran another pre-test: we presented 3 verbs with different 'noun + noun' combinations to 18 native speakers of Greek and asked them to choose the Subject of the verb in each case. Each noun was of neuter gender and appeared without an article. The three words of each combination were not presented in linear order, so that they would not 'resemble' to a written sentence (see Appendix II for an example). Combinations and items were presented in different orders. Our aim was to make sure that there is a strong preference for a certain noun in a given combination to be the Subject of the possible sentence. This way we would be able to see whether these preferences guide sentence interpretation in cases of ambiguity. The results revealed that there were preferences in some cases: for 2 of the verbs (klotasi *'kicks'*, maloni *'scolds'*), specific nouns were preferred as Subjects (means: 80.5% and 75%), whereas with one verb (travai 'pulls') no clear preference was found (56% for one noun, 44% for the other; see Appendix II for details). By including these 'verb+ noun+ noun' combinations in the experimental material we would be able to see whether these preferences have an effect on people's interpretations of ambiguous sentences, or whether their decisions are made on the basis of other criteria.

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[1] others than those who participated in the experiment, as in all other pre-tests.

Pairs of pictures were also pre-tested, in order to make sure that there was no preference for one picture to be more 'plausible' than the other (see Appendix II for an example).

5.2.3. Design

The 12 experimental conditions of the comprehension experiment resulted from the combination of two factors:

a) **Word Order (WO)** with three levels: SVO, VSO, VOS.

b) **Argument Marking (AM)** with four levels:

-SOmark: both arguments are unambiguously marked, i.e. Subjects and Objects were either feminine or masculine NPs (n of utterances =18)

-Smark: only the Subject is unambiguously marked for its grammatical function, i.e. Subjects are either feminine or masculine NPs and Objects are neuter NPs (n of utterances= 6)

-Omark: only the Object is unambiguously marked, i.e. Objects are either feminine or masculine and Subjects were neuter NPs, which are ambiguous between NOM vs. ACC (n of utterances= 6)

-nomark: neither the Subject nor the Object is unambiguously marked for case, i.e. both Subject and Object NPs consist of neuter articles and nouns (n of utterances= 6).

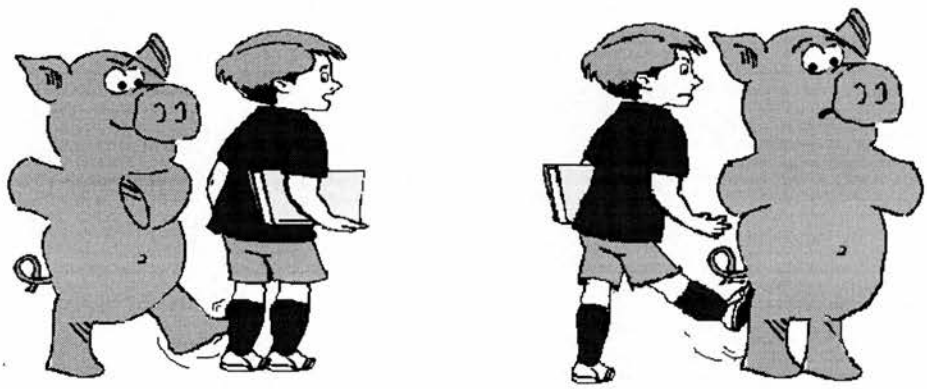
In each of the experimental lists, each 'VP+ NP+ NP' combination appeared only once and in one of the three different orders; the marking of the NPs differed among lists: for example, the combination 'aghapai + antras + ghineka', '*loves + the man + the woman'* was heard by one participant as SVO, by a second one as VSO, and by a third one as VOS, each time the Subject being the NP 'o antras', *the-man.*Nom. The same combination was also heard by three other participants as SVO/ VSO/ VOS, but the Subject in these cases was the NP 'i ghineka', *the- woman.*Nom.

In all 36 experimental utterances/pairs of pictures that each participant heard/saw, Subjects and Objects were animate (+/- human). All pictures were coloured. Characters mentioned as Subjects appeared equally often on the left and on the right side of the pictures. The correct picture was equally often the one on top and the one below, and the correct button was equally often on the left and on the right.

5.2.4. Procedure

Experiment was run on a Macintosh G3 PowerPC; a button-box was attached to the laptop. Presentation of the picture stimuli and the utterances, and the collection of the responses and reaction times were controlled by the PsyScope 1.2.1 experimental software (Cohen *et al.* 1993).

Each picture depicted two entities: entity A and entity B, both animate. Each pair of pictures consisted of picture A, in which entity A was the Subject and entity B the Object, and of picture B, in which entity B was the Subject and entity A the Object. For the Verb 'kick', for example, in picture A the pig was kicking a boy and in picture B the child was kicking the pig (Pictures 5.1).



Pictures 5.1: Experimental pair of pictures used in the comprehension task.

All pairs of pictures appeared on the left side of the screen; the picture on top was picture 1 (the number, in red, appeared next to it) and the one aligned under that was picture 2 (number, in green, appeared next to it).

Participants read the instructions for this experiment in their native language (i.e. Albanian, English or Greek). They were informed that a pair of pictures will first appear on the screen. Then participants would have to press the yellow button of the button box (which was between button 1, red, and button 2, green) to hear a sentence. Participants' task was to match the utterance they heard with one of the two pictures, by pressing -as quickly as possible- either the left button (button 1 -red) if they thought the utterance matched the first picture or the right button (button 2 -green) if the sentence was describing the second picture.

Participants were instructed to look at each pair of pictures first, for as long as they wished, until they fully understood what they were depicting (and what were the difference between the two), then to press the button to hear the sentence, and then

respond as fast as possible. There was an example session (same pair of pictures that appeared 3 times) and a practice session with 15 pair of pictures, other than the experimental material. Participants were told that they could repeat the practice session if they did not feel accustomed with the procedure (no one did). Then the experimental session followed, which included the 36 pairs of pictures and the 36 experimental utterances along with 35 fillers, all of which appeared in random order.

Elementary learners from both language groups needed nearly one hour to complete the whole task; advanced learners needed 30-40 minutes and native speakers completed the whole task in 25-30 minutes approximately. Participants were not allowed to take breaks while the experiment was running.

5.2.5. Analysis

Our hypothesis is that the two independent variables (WO, AM) will affect Subject assignment of 1^{ST} NP (i.e. there will be a preference for the first NP to be interpreted as the Subject of the utterance), erroneous interpretations (i.e. the previous preference might lead to erroneous interpretations of clearly marked VOS utterances, especially in the Smark condition) and RTs (i.e. -SO- utterances will be interpreted faster than -OS-).

Checking for outliers: before running the analysis of variance, we looked at participants' individual performance. Elementary learners whose inaccurate interpretations were more than 45/100 of their data (i.e., 17 out of 36 utterances) were excluded and replaced by other participants. For advanced learners the cut-off point was 30/100 of inaccurate responses. Additionally, when more than 15/100 of a person's RTs were +/- 2SD above the group mean for a particular WO x AM utterance, the data of that person were also excluded. Once a person was excluded from one experiment, he was automatically excluded from the other two experiments too. Thus, based on people's z-scores for RTs and the inspection of erroneous interpretations, we excluded 2 native speakers of Greek, 4 AeG, 3 AaG, 3 EeG, and 3 EaG speakers, and replaced them with other participants whose performance would not be that different from the performance of the other participants of each group.

Responses: For the first variable, i.e. Subject assignment of 1^{ST} NP, we counted the responses in which the 1^{st} NP was chosen as the Subject. The number 1 was given to each of these responses, and 0 was assigned to responses in which the 2^{nd} NP was taken

to be the Subject of the utterance. We have to notice that in the case of the nomark type, i.e. of ambiguous sentences in which both (neuter) nouns could be the Subject of the Verb, learners 'chose' themselves the WO that each one of these utterances belonged to, since the nomark NP-VP-NP order could be interpreted as SVO or OVS. Similarly, a nomark VP-NP-NP utterance could be interpreted either as VSO or VOS.

In order to have a unified analysis of ambiguous and unambiguous sentences, instead of looking at unambiguous utterances first, then at ambiguous ones, and finally compare the two types of utterances, we preferred to examine ambiguous and unambiguous utterances together, by considering the ambiguous VP-NP-NP orders as VSO in the case that participants chose the 1st NP as the Subject, and as VOS whenever they took the 2nd NP to be the Subject of the ambiguous sentence. The motivation for a unified analysis was not only the fact that we would avoid over-exploring our data, but also that it is our research assumption that unmarked utterances are ambiguous in Greek. Perhaps, if there is a strong S-first preference, these sentences are not 'ambiguous' for speakers of Greek, in the sense that they do not find them 'puzzling' in their interpretation and that they unanimously –and fast– prefer one interpretation to the other.

ANOVAs and Post-hoc Tukey HSD tests were conducted using the means of participants' responses.

RTs were log-transformed (LNs) to reduce the differences in variance between learner groups, and to render the distribution more nearly normal.

In the case of the ambiguous NVN utterances, all RTs were included in the SVO order (since in the case of NVN unambiguous utterances all RTs were included, i.e. those that relate to erroneous and correct responses). For example, if the utterance was

(28)o antras aghapai ti jineka

the-man.NOM loves the-woman.ACC

'the man loves the woman'

and the participant (erroneously) interpreted it as *'the woman loves the man'*, the RT for this response was not excluded from the person's RTs.

Similarly, if the utterance was

(29) to pedhi klotsai to ghuruni

the-child.NOM/ACC kicks the-pig.NOM/ACC

'the child is kicking the pig' or *'the pig is kicking the child'*

the RT for this response was included in the SVO RTs of this person, regardless of the interpretation that this person 'preferred' (SVO or OVS).

Regarding V-initial ambiguous utterances, all responses that relate to VSO interpretations were used for VSO cells, and those that relate to VOS interpretations were included in the RTs for VOS.

In order to look at the error items, we disregarded the -nomark types, since in the case of these sentence types we can only talk about preferences and not about errors. This yielded 9 cells instead of 12 that we have for the other two variables (WO x AM = 3 x 3= 9).

The by-items analysis was not possible, because verbs were used with different NPs in different AM combinations: thus, though the design had constituent order and case marking as repeated measures for verbs, it did not have a consistent design for VP+NP+NP combinations.

5.3. Results and discussion

All figures in this chapter display means of each of the three dependent variables in the experimental conditions. The descriptive statistics for the experimental results can be found in Appendix II.

For this experiment, as well as for the other two presented in Chapters 6 and 7, we are going to filter our data and only discuss those findings that were statistically significant.

5.3.1.Greek native

5.3.1.1. Subject assignment of 1st NP

VOS order attracted significantly fewer 1st NP Subject assignments than the other two orders (main effect of WO: F_1 (2, 34) = 595.33; $p \leq .001$; post-hoc Tukey HSD test: VOS vs. VSO/ SVO, in both cases: $p \leq .001$). This result indicates correct interpretation of SVO, VSO and VOS utterances (the mean Subject assignments of 1ST NP in the three WOs are graphed in Figure 5.1).

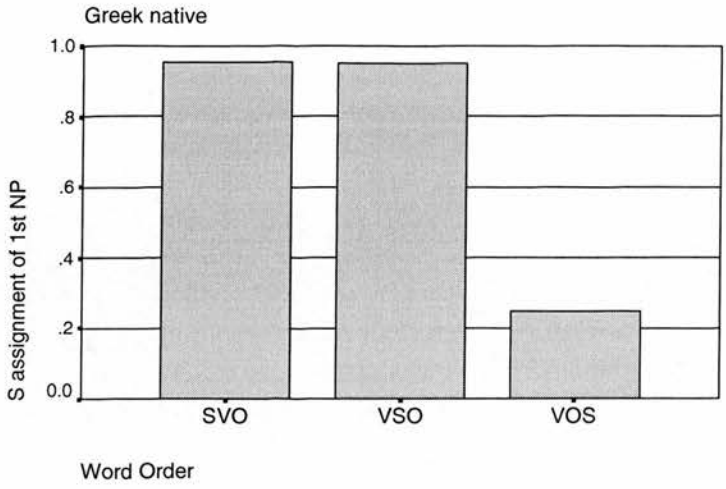


Figure 5.1: Greek native Subject assignment of 1st NP in the three WOs.

Moreover, utterances in which NPs were unmarked for case involved more Subject assignments on the 1ST NP than on SO/S/Omark (main effect of AM: F_1 (3, 51) = 39.87; $p \leq .001$; post-hoc Tukey test: $p \leq .001$).

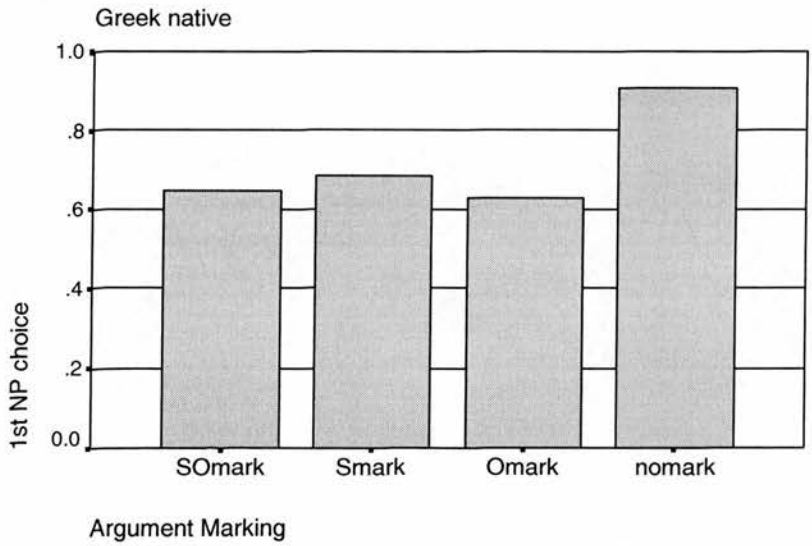


Figure 5.2: Greek native Subject assignment of 1st NP in the four AM levels.

Where the two effects combine, in VOS utterances the 1ST NP is assigned the Subject role far more often when the NPs are not marked for case than when both or one of the NPs are unambiguously case marked. Thus, any case marking in VOS examples virtually eliminates the tendency to a S-first interpretation (WO by AM: F_1 (6, 102) = 32.97; $p < .001$; post-hoc tests: VOS-nomark vs. VOS-SO/S/Omark, for all comparisons $p < .001$).

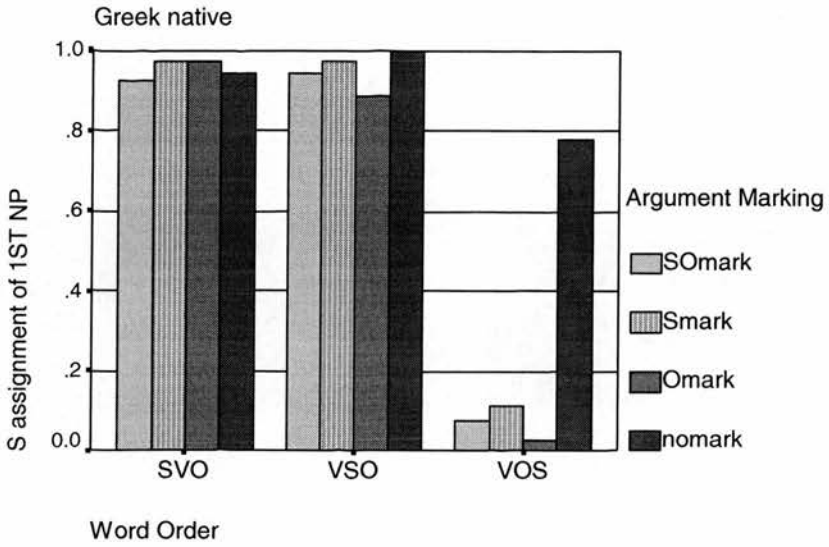


Figure 5.3: Greek native Subject assignment of 1st NP in the 'WOs by AM' interaction.

		VOS			
		SOmark	Smark	Omark	nomark
SVO	SOmark	***	***	***	
	Smark	***	***	***	**
	Omark	***	***	***	**
	nomark	***	***	***	*
VSO	SOmark	***	***	***	*
	Smark	***	***	***	**
	Omark	***	***	***	
	nomark	***	***	***	***
VOS	SOmark				***
	Smark				***
	Omark				***

** < .05; **< .01; ***<.001*

*Table 5.1: Post-hoc Tukey HSD tests for the interaction Word Order*Argument Marking in the Greek native group.*

This difference between the interpretations of VOS utterances is a rather trivial finding since it simple shows that Greek native speakers make use of the morphological markers to decode grammatical relations.

The interesting finding here relates to the nomark types in the three orders. As we see in Figure 5.3, native speakers of Greek nearly unanimously (94%) interpret the ambiguous V-middle utterances as SVO. In the case of V-initial ambiguous orders, we see that the majority interpret them as VSO, but 22% of native speakers interpret these utterances as VOS.

1ST NP Subject assignments in VOS-nomark utterances are not significantly rarer than in SVO-SOmark and VSO-Omark. Thus, we could argue that the small percentage of V-initial ambiguous sentences that have been interpreted as VOS does not call into question the use of S-first strategy to which native speakers of Greek resort in order to interpret ambiguous sentences.

This tendency was nearly homogeneous across participants: eleven people interpreted all V-initial ambiguous tokens as VSO (VSO =100%), six interpreted 3 out of 4 V-initial ambiguous tokens as VSO, and only one as VOS (VSO=75%, VOS=25%); one person interpreted the ambiguous utterances in a random way (VSO=50%, VOS=50%). Since we also looked at the error rates, we took into consideration the erroneous interpretations that this 'random' person has made in marked sentences and we saw that he was the person with the highest error rate in the Greek native group (4 errors out of 30 utterances). This person also had one of the fastest RT mean (i.e. 7.633 LNs of mscs; the mean RT for the Greek group was 7.835). We could therefore, conclude that, with the exception of that one participant (who also seemed more 'careless' than the others), native speakers of Greek consistently use a S-first strategy in order to interpret ambiguous V-middle and V-initial utterances (cf. 8.2.1).

5.3.1.2. Errors

We have also assumed that the S-first preference may lead people into erroneous interpretations of marked sentences, i.e. in the VOS-Smark type, the 1st encountered NP could be erroneously assigned the Subject role, as a result of the overuse of the S-first preference.

In the Greek group, the 18 participants made few errors: from a total of 648 unambiguous utterances, only 34 were erroneously interpreted. The minimum number of errors per person was 0, the maximum 4, and the mean 1.889 (see also treatment of outliers, section 5.2.5). It is not surprising that no main effect was significant for error scores; the interaction WO by AM was not significant either.

Our conclusion is then that only in ambiguous sentences does the S-first preference determine choices. In all other cases, native speakers of Greek identify grammatical relations via morphological markers and their interpretations are not affected by any kind of preference.

5.3.1.3. Reaction Times (RTs)

VOS order yielded slower RTs than VSO or SVO (F_1 (2, 34) = 11.221; $p < .001$; Tukey test against VSO p=.021, and SVO p<.001). This result seems to confirm with the hypothesis that SO orders are easier than OS. However, one could argue that Figure 5.4 is depicting a result of theoretical importance: SVO and VSO are faster than VOS because VOS is derived via a more complex process; if VSO is the basic order in Greek, RTs should be fast for this order, as opposed to RTs for VOS. However, in order for such a claim to be made, we need to find that the interaction between WO and AM is not significant; such a finding could verify that processing factors do not directly effect native speakers' RTs. Additionaly, we would expect to find a similar pattern in the judgment experiment, where we also look at RTs, which, as we shall see, is not the case (in the judgment experiment, RTs for VSO sentences do not differ significantly from RTs for VOS sentences; see section 7.4.1.3 for details).

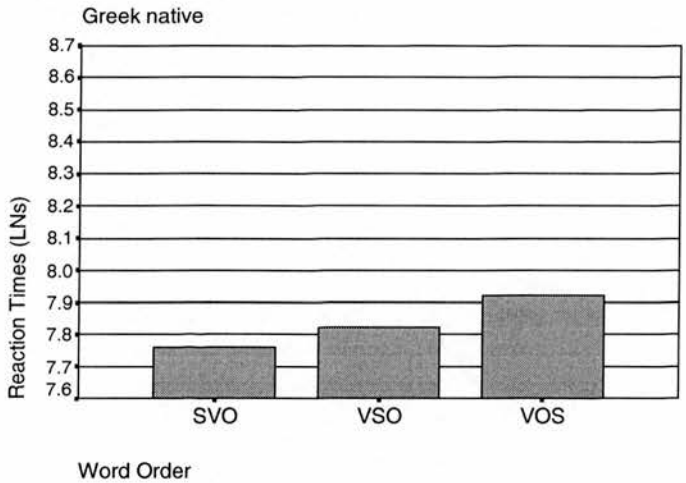


Figure 5.4: Greek native RTs in the three WOs.

The effect of AM was not significant, but the interaction WO by AM was significant (F_1 (6, 102) = 4.191; $p < .001$). As we see in Figure 5.4, RTs for SVO-Smark are faster than the other RTs, whereas VSO-Omark utterances involve slower RTs, just like VOS-Omark utterances; the latter two sentence types seem to have similar RTs. On the other hand, VOS-Smark utterances seem to be causing more difficulties to native speakers of Greek, as they involve the longest RTs.

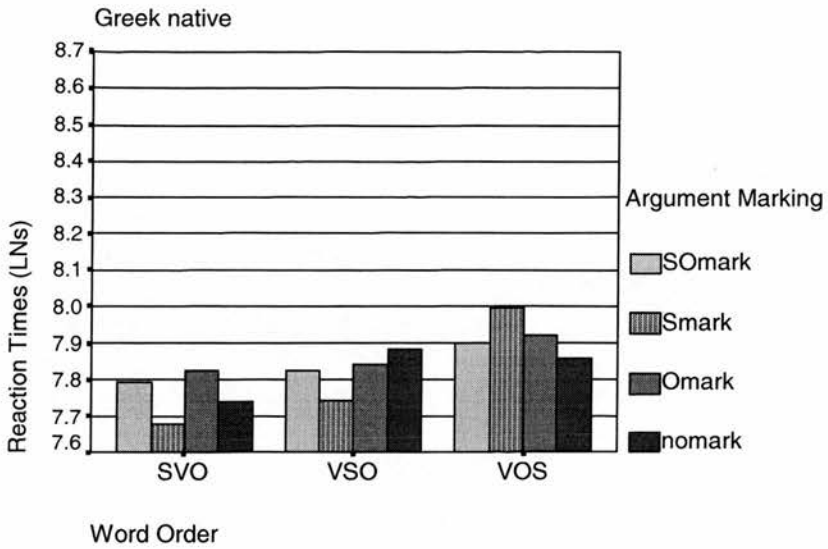


Figure 5.5: Greek native RTs in the 'WO by AM' interaction.

Indeed, the Tukey tests indicated that RTs for SVO-Smark are significantly faster than those for VSO-Omark ($p = .028$), VSO-nomark ($p < .001$) and all VOS types (in all comparisons $p \leq .009$). On the contrary, RTs for VSO-Omark utterances were not significantly faster than all VOS types. Additionally, SVO-Omark does not differ from VOS-SO/-Omark, and SVO-nomark does not differ from VSO/VOS-nomark utterances.

		VSO		VOS			
		Omark	nomark	SOmark	Smark	Omark	nomark
SVO	SOmark				**		
	Smark	*	***	***	***	***	**
	Omark				*		
	Nomark			*	***	**	
VSO	SOmark				*		
	Smark			*	***	**	

** < .05; **≤.01; ***≤.001*

Table 5.2: Tukey HSD tests for the interaction 'WO by AM' in the Greek native group (RTs).

We can assume that the differences between SVO-Smark and VSO-Omark and between VSO-Smark and VOS-Omark show that the process of sentence interpretation becomes faster when the first NP is not only marked for its grammatical function, but it is also marked with Nominative, i.e., it is the Subject of the verb. Moreover, we could argue that VOS-Smark and VSO-Omark do not differ because in both cases the Subject can be identified only after the second NP has been heard, and this results in long RTs.

Such an assumption, on the other hand, would also predict that SVO-Omark should have longer RTs, which is not the case; we have thus to assume that SVO facilitates processing more than the other two orders do: SVO-Smark involves the fastest RTs not only because the Subject NP appears in early position, but also because it is in SVO order. Further research is needed, in order to provide stronger evidence that it is the SVO order, and not the SO sequence that results in fast RTs for SVO-Smark. These findings, we believe, do not allow us to draw any definite conclusions with respect to speakers' representations, since WO interacts with overt case marking and it is this interaction that affects the speed in which the three orders are processed: VSO-Omark can be slower than SVO-Smark and as time-consimung as VOS types; SVO-Omark also demands more time to be processed, and this is why it does not differ from VSO as well as from VOS-SO/Omark.

As for the nomark types, we see that VSO/VOS-nomark do not differ from the other sentence types – the exception being SVO-Smark, which has the fastest RTs. We could therefore assume that the ambiguity of the V-initial utterances is resolved as fast as the ambiguity of V-middle orders, and people do not need more time for the interpretation of ambiguous utterances of this kind (i.e., S/O ambiguity).

5.3.1.4. Discussion

In the Greek native data we found evidence in favor of the S-first hypothesis: in ambiguous V-middle and V-initial utterances, the Subject role was assigned to the 1st NP 94% and 89% of the times respectively. Apart from this preference, no other factors were found to affect native speakers' interpretations (recall the preferences for certain nouns to be the Subjects of certain verbs that were found in the pre-test, when the three constituents (verb, noun1, noun2) were presented as isolated words; section 5.2.2).

With respect to RTs, we assumed that the sooner a marked Subject is encountered in an utterance, the faster that utterance will be interpreted, and that SVO is more facilitating than the other two orders. These two conditions explain why RTs for SVO types and VSO-Smark are faster than RTs for VOS types, and why RTs for SVO-Smark are significantly faster than RTs for VSO-Omark, and why the latter WO x AM type did not yield significantly slower RTs than VSO-Smark.

We can thus conclude that the S-first preference is used for the interpretation of ambiguous utterances in contexts that allows both options (-SO- /-OS- interpretation), and that has a facilitating role in processing, which interacts with AM. Further research

is required in order to provide stronger evidence for the assumption made about the facilitating role of SVO.

5.3.2. Albanian groups

5.3.2.1. Albanian elementary

Subject assignment of 1st NP

As we see in Figure 5.6, VOS utterances attracted significantly less Subject assignments on the 1ST NP than SVO and VSO (main effect of WO: F_1 (2, 34) = 60.566; $p < .001$; Tukey tests: VOS vs. SVO/VSO, in both comparisons $p < .001$).

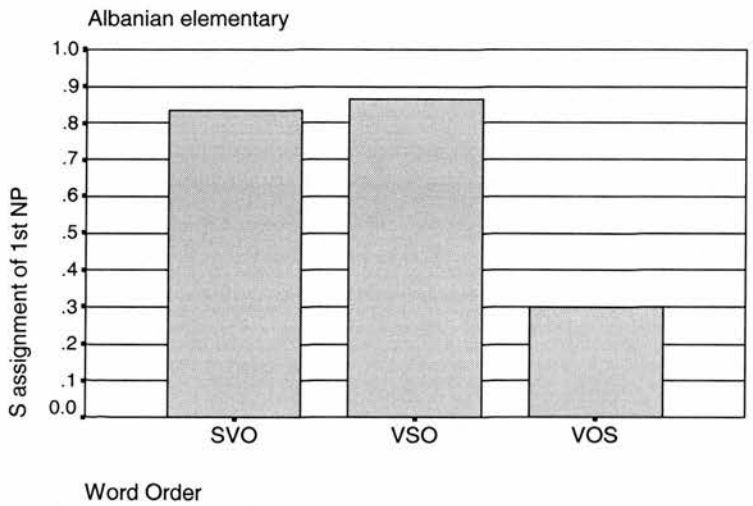


Figure 5.6: Albanian elementary Subject assignment of 1st NP in the three WOs.

Moreover, the Subject role was assigned more often on the 1ST NP when only the Subject of the utterance was marked (Smark) than when both arguments were marked (SOmark) or when none of them was marked for case (main effect of AM: F_1 (3, 51) = 3.932; $p = .013$; Tukey test against SOmark $p = .046$, against nomark $p = .016$).

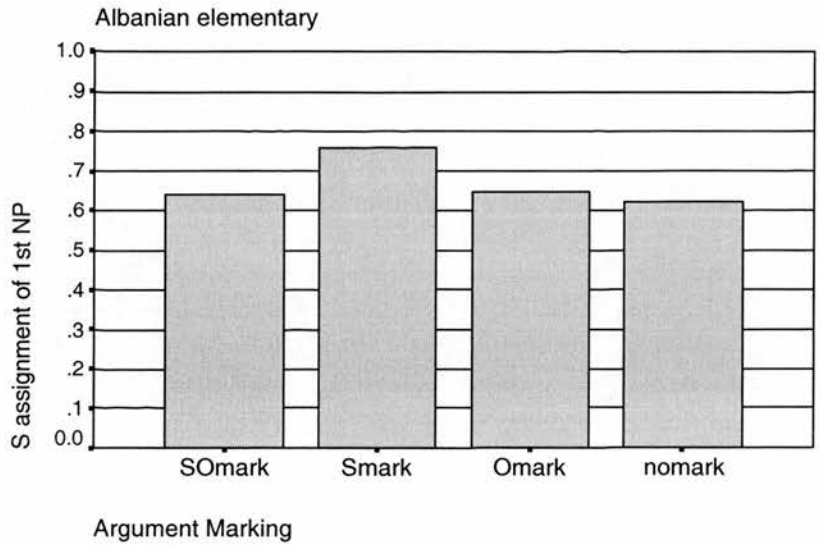


Figure 5.7: Albanian elementary Subject assignment of 1st NP in the four AM levels.

The interaction WO by AM was also significant (F_1 (6, 102) = 4.97; $p < .001$). But this group of speakers does not seem to use a S-first strategy consistently. In Figure 5.8 we see that V-middle ambiguous utterances were not always interpreted as SVO and that a lot of V-initial ambiguous utterances were given a VOS interpretation.

Indeed, VSO-nomark elicited significantly more Subject assignments on the 1ST NP than SVO-nomark ($p = .01$) or VSO-nomark ($p < .001$).

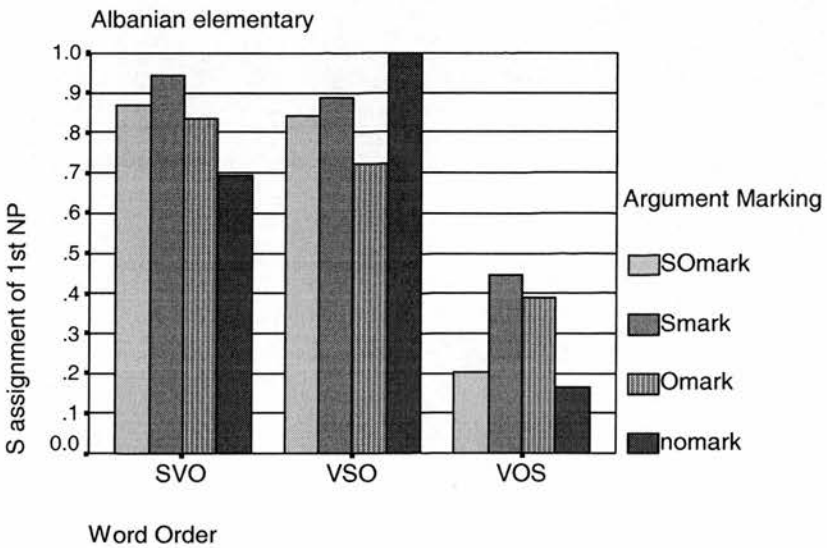


Figure 5.8: Albanian elementary Subject assignment of 1st NP in the 'WO by AM' interaction.

		VSO		VOS			
		Omark	nomark	SOmark	Smark	Omark	nomark
SVO	SOmark			***	***	***	***
	Smark			***	***	***	***
	Omark			***	***	***	***
	nomark		**	***		**	***
VSO	SOmark			***	***	***	***
	Smark			***	***	***	***
	Omark			***	*	***	***
	nomark	*		***	***	*	***
VOS	nomark				*		

[* < .05; **≤.01; ***≤.001]

*Table 5.3: Post-hoc Tukey HSD test for the interaction Word Order *Argument Marking in the Albanian elementary group.*

We also have to notice that for this group of speakers the percentage for the SVO interpretations of V-middle ambiguous utterances is relatively low (69%), compared to the one of the Greek group (94%) for the same type of utterances. We could thus conclude that in AeG speakers exhibit a *tendency* to interpret ambiguous utterances in an -SO- fashion, which is more apparent for V-middle utterances (since 58.5% of V-initial ambiguous utterances were interpreted as VSO).

On the other hand, there is a surprising difference between VOS-Smark and VOS-nomark utterances: the former yielded more Subject assignments on the 1ST NP than the latter. Moreover, SVO-nomark did not yield significantly more Subject assignments on the 1ST NP than VOS-Smark. These findings indicate that AeG speakers disregard morphological indications on NPs which should block an -SO- interpretation; in cases where no clear evidence exists about the grammatical role of the two NPs, AeG learners rarely assign the first unmarked NP the role of the Subject.

Errors

The error rate was relatively low for AeG learners: only 16.05% of the unambiguous utterances were interpreted in a non-native way (n = 105 out of 648; see also general treatment of outliers, section 5.2.5). The minimum number of errors per individual was 0, the maximum 12, and the mean 5.83.

AeG speakers interpret SVO utterances more accurately than VOS, (main effect of WO: F_1 (2, 34) = 5.238, p = .01; Tukey HSD test: p = .01), but VSO did not yield significantly more erroneous interpretations than SVO or significantly less than VOS.

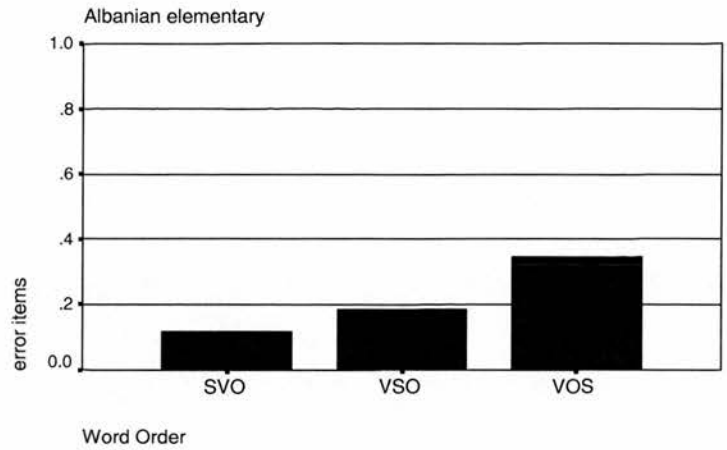


Figure 5.9: Albanian elementary error items in the three WOs.

Regarding case marking, more errors occurred with utterances in which only the Object was marked than with utterances in which both arguments were marked (main effect of AM: F_1 (2, 34) = 3.506, p = .041; Tukey HSD: p = .035).

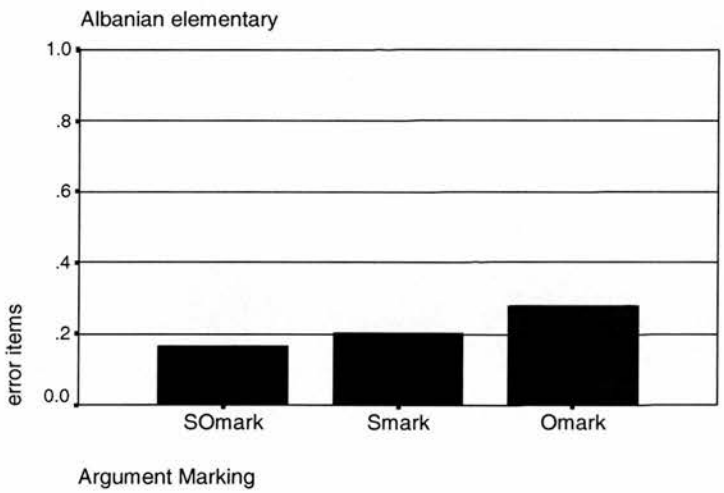


Figure 5.10: Albanian elementary error items in the three AM levels.

The interaction WO by AM shows that the interpretation of SVO–Smark and VSO–Smark types was more accurate than the interpretation of the other types, while VOS-S/-Omark utterances were misinterpreted very frequently (F_1 (4, 68) = 3.627, p = .01).

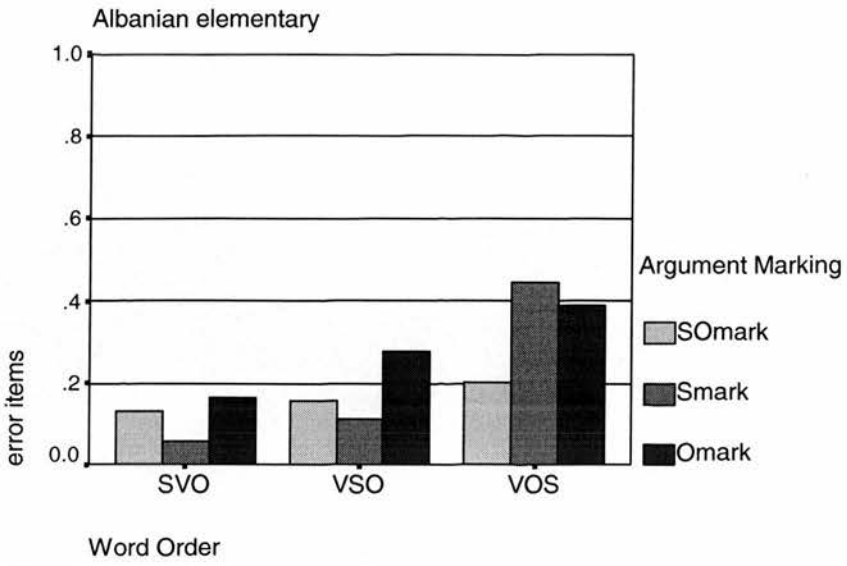


Figure 5.11: Albanian elementary error items in the 'WOs by AM' interaction.

The post-hoc Tukey test (Table 5.4) showed that VOS-Smark differs from SVO types (for all comparisons $p \leq .003$), from VSO-SOmark ($p = .002$) and VSO-Smark ($p \leq .001$), but not from VSO-Omark. Additionally, VSO-Omark differs from SVO-Smark ($p = .038$). Finally, we notice that VOS-SOmark does not differ from any of the SVO or VSO types, and that VOS-Omark differs from all types of SVO (in all comparisons, $p \leq .038$), from VSO-SOmark ($p = .026$) and VSO-Smark ($p = .003$).

		VSO	VOS	
		Omark	Smark	Omark
SVO	SOmark		***	**
	Smark	*	***	***
	Omark		**	*
VSO	SOmark		**	*
	Smark		***	**
VOS	SOmark		*	

** < .05; **≤.01; ***≤.001*

Table 5.4: Post-hoc Tukey HSD results of the interaction 'WO by AM' in the Albanian elementary group (error items).

The results seem to indicate that for AeG speakers, SVO is easier than the other two orders especially when only the Subject is marked. VSO yields more errors when the Subject is not marked for case, while VOS order can become easier only when both NPs are marked for their grammatical function.

The fact that significantly more errors occur in VOS-Smark utterances than in VOS-SOmark seems to indicate that if the 1st NP is not marked for case, AeG speakers assign to it the role of the Subject without paying attention to the case marking of the second NP. This 'preference' for a SO interpretation could also explain why VOS-S/Omark were incorrectly interpreted as VSO. However, the fact that VSO-Omark also involved a lot of incorrect responses, i.e. it was interpreted as VOS, is an indication that AeG speakers do not have an SO preference, but rather an SO tendency.

Additionally, the errors in VSO-Omark, and the difference between VOS-Smark and VOS-SOmark as well as the non-difference between VOS-Omark and VOS-SOmark seem to indicate that accurate interpretation is facilitated when the NP that comes right after the Verb is marked for case.

Reaction Times (RTs)

In the analysis of variance, a significant main effect of WO was found on RTs (F_1 (2, 34) = 11.99, $p \leq .001$). AeG speakers are faster when interpreting SVO utterances than they are with VSO and VOS (for both comparisons $p \leq .001$). Mean RTs for the V-initial orders are nearly identical (Figure 5.12).

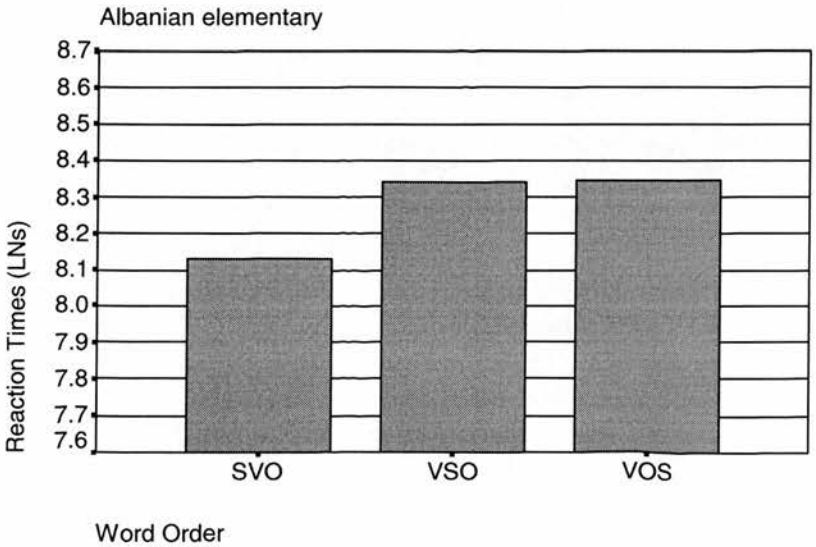


Figure 5.12: Albanian elementary RTs in the three WOs.

Moreover, RTs for SOmark and Smark utterances are significantly faster than RTs for nomark (main effect of AM: F_1 (3, 51) = 6.964, $p \leq .001$; Tukey HSD: nomark against SOmark $p = .002$, against –Smark $p \leq .001$).

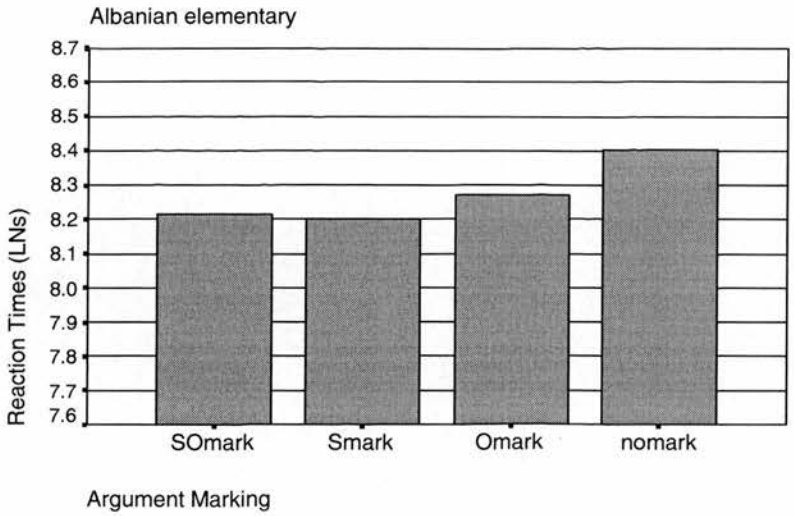


Figure 5.13: Albanian elementary RTs in the four AM levels

The significant interaction of WO by AM (F_1 (6, 102) = 3.162, p = .007) shows first of all that AeG learners responded significantly slower to VSO-/VOS-nomark utterances than to SVO, including, though, SVOnomark (Table 5.5). It is V-initial ambiguous patterns that create delays and not V-middle.

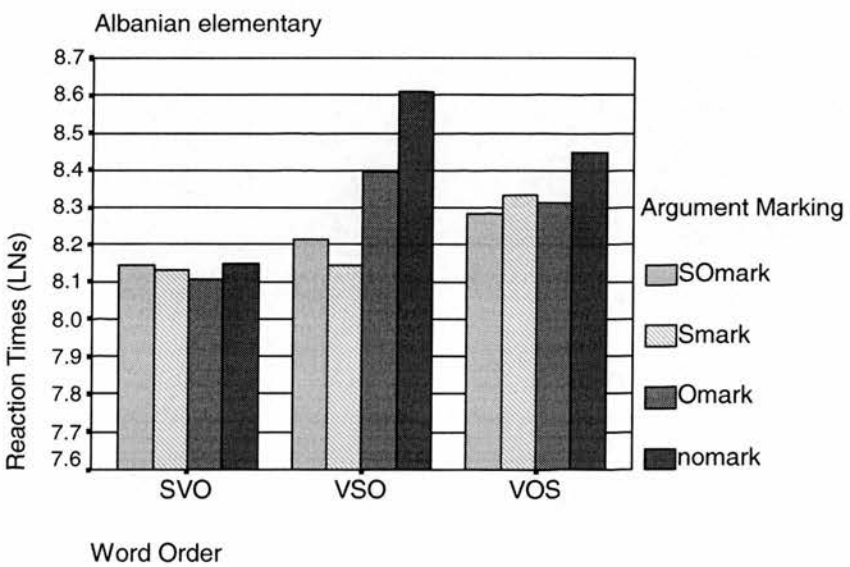


Figure 5.14: Albanian elementary RTs in the 'WOs by AM' interaction.

Moreover, VOS-nomark does not differ from VSO-SOmark, neither from VOS-SO/-Omark, whereas VSO-nomark does. We could take that as a possible indication that AeG speakers need more time in order to adopt a VSO interpretation in ambiguous V-initial utterances, than they do when they adopt a VOS interpretation. This finding also

conforms to the hypothesis that AeG speakers do not have a clear 'S-first preference', like the Greek controls.

		VSO nomark	VOS Nomark
SVO	SOmark	***	*
	Smark	***	*
	Omark	***	**
	nomark	***	*
VSO	SOmark	***	
	Smark	***	*
VOS	SOmark	**	
	Smark	*	

*$p < .05$; **$p \leq .01$; ***$p \leq .001$

Table 5.5: Tukey HSD results: WO by AM in the Albanian elementary group (RTs).

Discussion

AeG speakers have a preference for an SVO interpretation of V-middle ambiguous orders (68%), but there is no consistent strategy for V-initial sentences, which are interpreted in a more random way, slightly favoring the VSO interpretation (58.5% of VSO vs. 41.5% of VOS). Moreover, RTs are longer in the case of ambiguous V-initial utterances but not in the V-middle. AeG learners seem to need more time to interpret a VP+NP+NP sequence as VSO than to interpret it as VOS: the tendency for S-first is not an automatized process.

Regarding errors, AeG speakers seem to be able to interpret accurately enough unambiguous utterances by decoding morphological markers. There is no evidence for an overuse of the 'S-first' strategy, since VOS-Smark, which has the highest mean of erroneous interpretations, does not differ from VSO-Omark. The interpretation of V-initial utterance could become more accurate when the NP that comes after the Verb is marked for case.

In terms of our research questions we can conclude that AeG speakers realize the ambiguity that morphological marking creates (longer RTs in V-initial utterances) but they do not consistently use the S-first strategy to resolve it. This, however, only applies to V-initial utterances. In the case of V-middle utterances, we can conclude that AeG speakers are more willing to adopt an S-first strategy, but this could be due to the preference for SVO order rather for SO *per se*. This SVO preference could be due to L1 influence, since Albanian is an SVO language. Given that no relevant research is available for native Albanian, we can only make assumptions about the role of L1. We

can also compare Albanian and English speakers of Greek and if the three language groups differ from each other, we can conjecture that the L1s are responsible for the points of divergence from the target language.

5.3.2.2. Albanian advanced

Subject assignment of 1st NP

The main effect of WO was significant (F_1 (2, 34) = 203.15, $p \leq .001$): in VOS utterances, AaG speakers do not assign the Subject role on the 1ST NP (Tukey HSD: VOS vs. SVO /VSO, in both cases $p \leq .001$). This, again is not a surprising finding, since it indicates accurate interpretation of L2 utterances on the basis of morphological case marking.

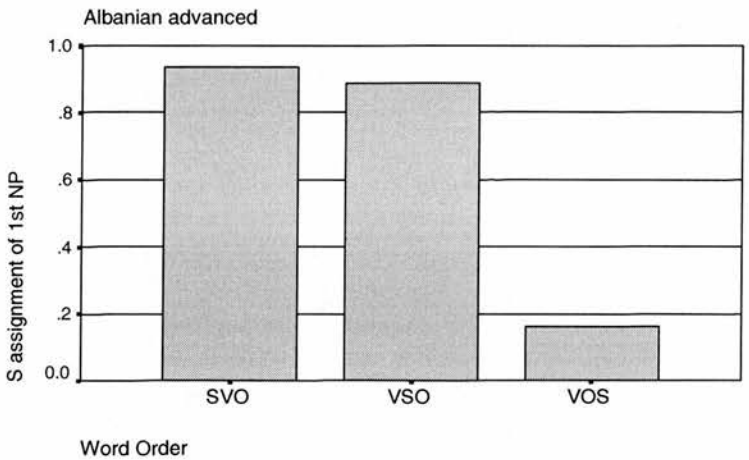


Figure 5.15: Albanian advanced Subject assignment of 1st NP in the three WOs.

The effect of AM was also significant (F_1 (3, 51) = 3.43, p = .024): Smark utterances yielded significantly more 1ST NP Subject assignments than Omark utterances (p = .028).

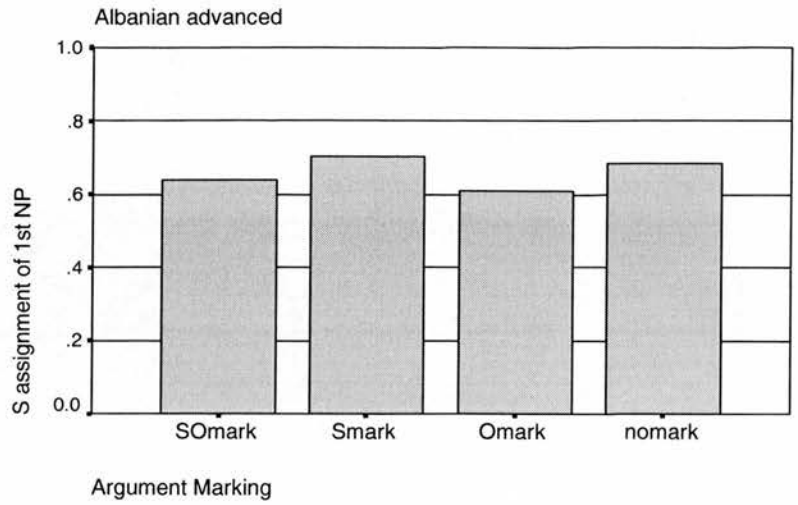


Figure 5.16: Albanian advanced Subject assignment of 1st NP in the four AM levels.

The interaction of WO by AM was significant too (F_1 (6, 102) = 2.45, p = .03). In Figure 5.17 we see that the great majority of V-middle utterances (SVO-nomark) was given an SVO interpretation. Moreover, SVO- and VSO-nomark do not differ, as the Tukey HSD test indicates (Table 5.6).

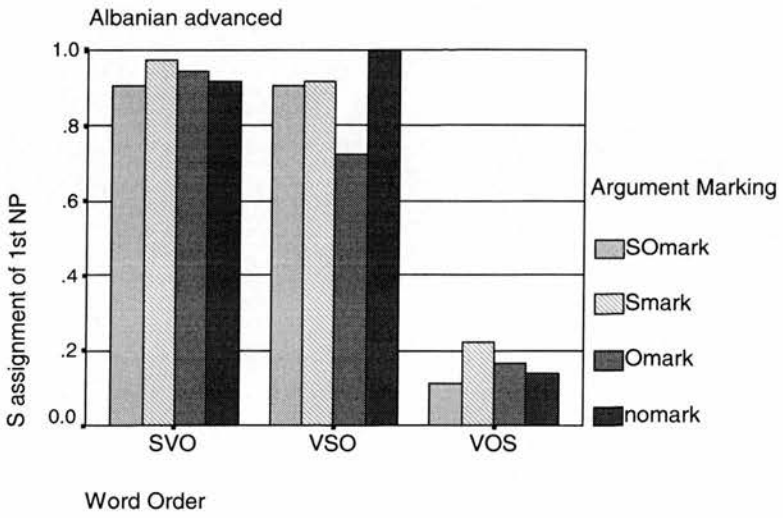


Figure 5.17: Albanian advanced Subject assignment of 1st NP in the 'WOs by AM' interaction.

		VSO	VOS			
		Omark	SOmark	Smark	Omark	nomark
SVO	SOmark		***	***	***	***
	Smark	*	***	***	***	***
	Omark		***	***	***	***
	nomark		***	***	***	***
VSO	SOmark		***	***	***	***
	Smark		***	***	***	***
	Omark		***	***	***	***
	nomark	**	***	***	***	***
VOS	SOmark	***				
	Smark	***				
	Omark	***				
	nomark	***				

*$p < .05$; **$p \leq .01$; ***$p \leq .001$

Table 5.6: Tukey HSD results: 'WO by AM' in the Albanian advanced group (S assignment of 1st NP).

Our first conclusion could then be that there is a clear S-first preference for V-middle ambiguous utterances. On the contrary, the mean for VOS interpretations in the case of V-initial ambiguous utterances is still high. Moreover, VOS-nomark differs from all types of SVO and VSO. It seems that at this level of L2 proficiency, the difference between V-initial and V-middle ambiguous utterances becomes clearer, and AaG speakers use a S-first strategy only for the latter type (cf. Figures 5.8 and 5.17).

Moreover, significantly fewer Subject assignments of the 1ST NP were made in VSO-Omark utterances than in SVO-Smark ($p = .021$). We could assume that this is due to the tendency that AeG speakers have to construct a VP node if the NP that comes after the Verb is not marked with Nom case. If that hypothesis is true, then we will also find that the interpretation of VOS-Smark utterances was significantly more accurate than VSO-Omark. In order to see whether this happens, we will look at the AaG speakers' errors.

Errors

AaG make very few erroneous interpretations of unambiguous utterances: 9.57% of the utterances (62 out of 648) were interpreted incorrectly. The minimum number of errors per individual was 0, the maximum 10, and the mean 3.444.

Although the error rate was not high, there is still a significant main effect of WO on AaG speakers' errors (F_1 (2, 34) = 4.255, p = .022). SVO produced significantly fewer errors than VOS (p = .029). VSO did not differ either from SVO or from VOS.

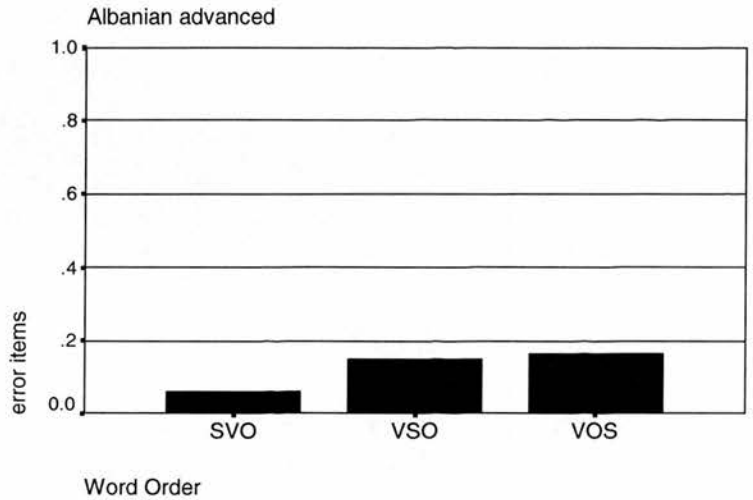


Figure 5.18: Albanian advanced error items in the three WOs.

The effect of AM was not significant.

The shape of the 'AM by WO' interaction (F_1 (4, 68) = 4.743, p = .002) tends to support our previous conclusion that there is no S-first strategy in the case of V-initial orders.

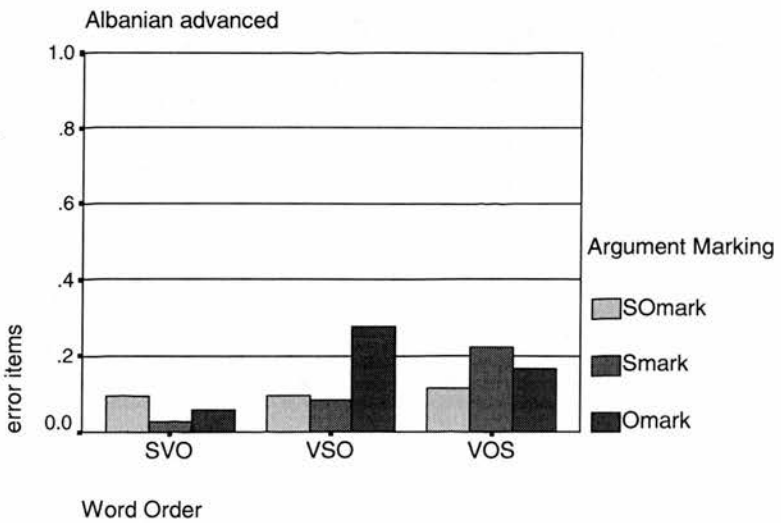


Figure 5.19: Albanian advanced error items in the 'WOs by AM' interaction

		VSO Omark	VOS SOmark
SVO	SOmark	*	
	Smark	***	**
	Omark	***	*
VSO	SOmark	**	
	Smark	**	
VOS	SOmark	*	

$*p < .05$; $**p \leq .01$; $***p \leq .001$

Table 5.7: Tukey HSD results: WO by AM in the Albanian advanced group (errors).

VSO-Omark differs from all SVO types (for all comparisons $p \leq .015$), from VSO-SO/Omark ($p = .014$, and $p = .008$ respectively), and from VOS-SOmark ($p = .041$). In other words, AaG speakers interpret VSO-Omark utterances as VOS, despite the morphological marker on the second NP which dictates a different interpretation. VSO-Omark, on the other hand, does not differ from VOS-Smark, which differs only from SVO-S/Omark ($p = .008$ and $p = .041$ respectively). This is a further indication of the tendency that AaG speakers have for a VP construction as soon as the Verb is heard.

Reaction Times (RTs)

ANOVA revealed a significant main effect of WO (F_1 (2, 34) = 14.082, $p < .001$). The Tukey test verified the significance of the difference we observe in Figure 5.20: SVO is significantly faster than the two V-initial WOs (SVO vs. VSO /VOS, in both cases $p \leq .001$).

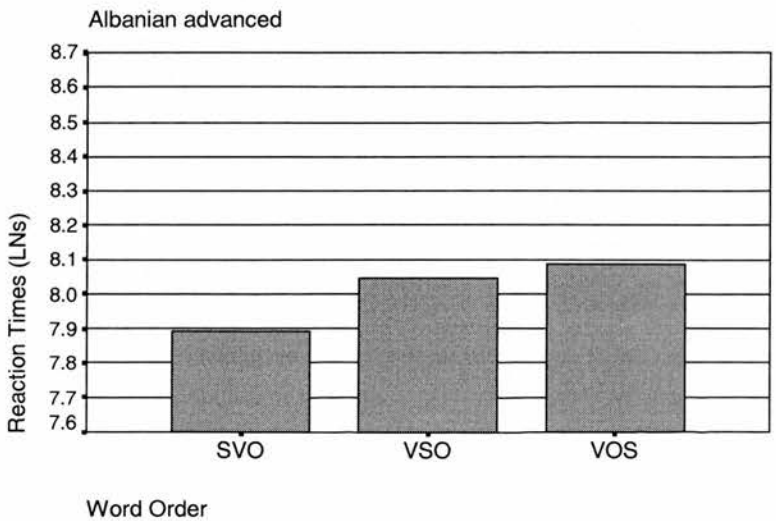


Figure 5.20: Albanian advanced RTs in the three WOs.

The effect of AM was significant too (F_1 (3, 51) = 4.515, p = .007): utterances in which only the Subject was marked had significantly faster response times than utterances in which only the Object was marked (Smark vs. Omark p = .004).

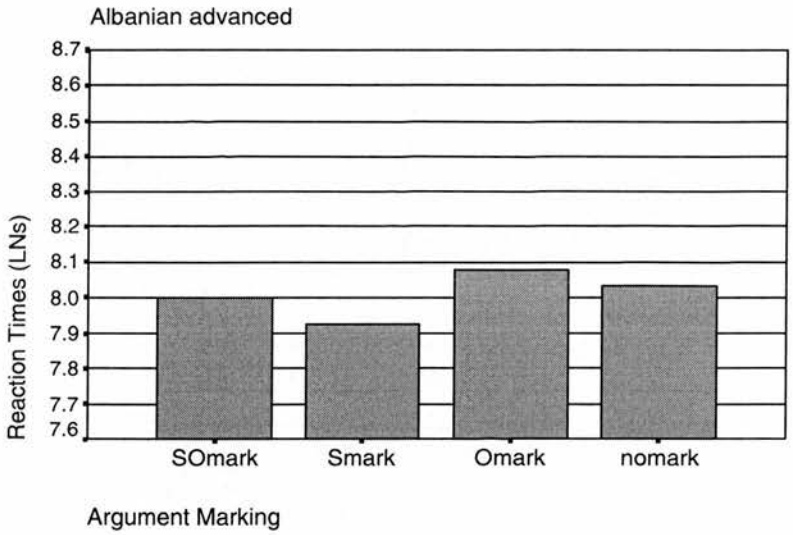


Figure 5.21: Albanian advanced RTs in the four AM levels.

The interaction WO by AM was not significant (F_1 (6, 102) = 1.448, p > .1).

We can conclude that the process of sentence interpretation becomes faster only when constituents appear in SVO order; as for case marking, it has a negative effect (i.e. slower RTs) when only Objects (and not Subjects) are marked for their grammatical function.

Discussion

AaG speakers do not exhibit a consistent 'S-first' strategy in V-initial orders. More often the ambiguous utterances are interpreted as VSO (57%), but there are many VOS interpretations too (43%). Conversely, in V-middle ambiguous utterances, AaG speakers clearly prefer the SVO interpretation (92%). Still, this might not be indicative of a 'S-first' preference, but of a preference for SVO, the order which also attracts the fewest erroneous interpretations and the fastest RTs. Contrary to the 'S-first' hypothesis, we found that VSO-Omark differs from all SVO types in terms of errors and from SVO-Smark in terms of Subject assignment of 1ST NP.

Regarding our research questions we can conclude the following:

SO interpretation is adopted only in V-middle ambiguous utterances as a result of the SVO preference that AaG learners have. In the case of V-initial unambiguous orders no clear preference is found. The fact that VSO-Omark involved significantly more erroneous interpretations than nearly all other 'WO by AM' types (the exceptions being VOS-S/Omark) could be seen as an indication of the tendency that AaG speakers have to construct a VP node after the Verb is heard. Moreover, RTs become slower when only Objects are case-marked, which could mean that the identification of the Object is a more demanding process than the identification of the Subject, possibly because Accusative (i.e. Object) case is more often syncretized than Nominative (i.e. Subject) case, which is also the citation form and, possibly, this could also have some effect on its accessibility.

The SVO preference, in the case of V-middle ambiguous utterances, and the VP-node tendency, to which AaG speakers resort occasionally, could be due to the L1. The lack of research on native Albanian processing though leaves us with an open question with respect to the source of these 'strategies'.

5.3.2.3. Albanian elementary and advanced groups

The developmental pattern found in the two Level groups of Albanian speakers of Greek could be summarized as follows:

There is no change in the performance of elementary and advanced speakers in the case of ambiguous V-initial utterances, for which none of the two groups deploy a clear 'S-first' strategy: the means for VSO interpretations are nearly the same in the two groups (cf. Figures 5.8 and 5.17). There is a difference in their performance, though, in the case of V-middle utterances: in the AeG group, SVO interpretation of ambiguous utterances looked like a tendency (68%), as opposed to a nearly unanimous SVO interpretation of the AaG group (92%). Additional evidence for the lack of a S-first preference came from the error items analysis: overall, AeG speakers had more erroneous interpretations than AaG. We also found that AeG speakers made more erroneous interpretations in VOS-Smark utterances than in VSO-Omark ones, whereas advanced learners' mean of errors in the former sentence type is lower, compared to elementary speakers'. It is also interesting that at the advanced level, although Albanians make fewer erroneous 1ST NP Subject assignments in VOS-Smark sentences, there is no 'improvement' in terms of the errors made in VSO-Omark utterances (AeG and AaG

means are nearly the same; cf. Figures 5.11 and 5.19), an indication of the VP-node tendency that advanced speakers might have.

In terms of RTs, we have seen that the ambiguous V-initial utterances involved slower RTs only in the AeG group. We argued that in the elementary group these V-initial orders are perceived as ambiguous, and, in the absence of a strategic preference, elementary speakers find it difficult to 'decide' on their disambiguation. On the contrary, we could assume that advanced learners, apart from their better knowledge of the Greek morphological system, also have two competing preferences (S-first, VP-node) and this might be why their RTs are not affected by the WO by AM interaction. We also assumed that advanced speakers built this tendency for VP-node construction because of the difficulty they have to interpret utterances in which only the Object is marked (longer RTs for Omark type). This difficulty in turn could be due to the difference between Nominative and Accusative forms, the former being more easily identified than the latter, possibly because of their more prominent status (they are the citation forms and less often syncretized).

5.3.3. English groups

5.3.3.1. English elementary

Subject assignment of 1st NP

ANOVA revealed a significant main effect of WO (F_1 (2, 34) = 27.973, $p \leq .001$). the post-hoc Tukey HSD test indicated that VOS involves fewer Subject assignments of the 1st NP than the other two orders (VOS vs. SVO/ VSO, in both cases $p < .001$).

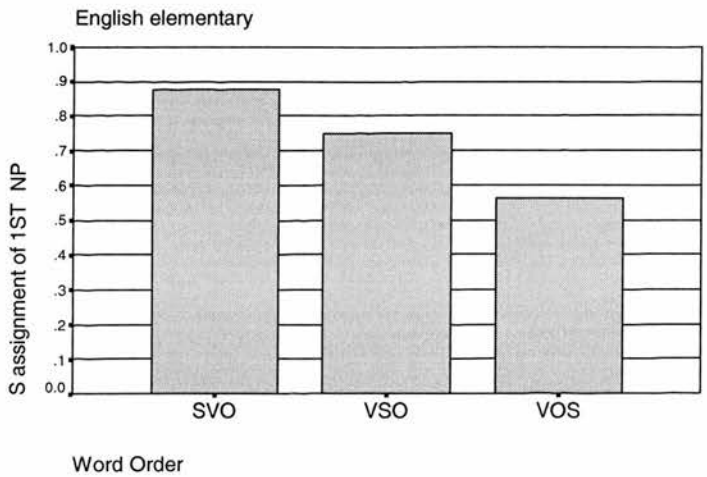


Figure 5.22: English elementary Subject assignment of 1st NP in the three WOs.

Overall, the effect of AM was not significant.

The interaction WO by AM was significant (F_1 (6, 102) = 5.135, $p \leq .001$): the post hoc tests (Table 5.8) showed that SVO-nomark and VSO-nomark do not differ, whereas VOS-nomark has significantly less Subject assignments of 1ST NP than the other two orders (for all comparisons $p \leq .001$). VSO-Omark utterances do not differ from other types of VSO or from SVO: the second NP was marked as the Object and EeG speakers adopted the correct VSO interpretation, contrary to the hypothesis of an over-use of the VO strategy of their L1. Additionally, VOS-Smark had significantly less Subject assignments of the 1ST NP than all unambiguous SVO types (for all comparisons $p \leq$ .001).

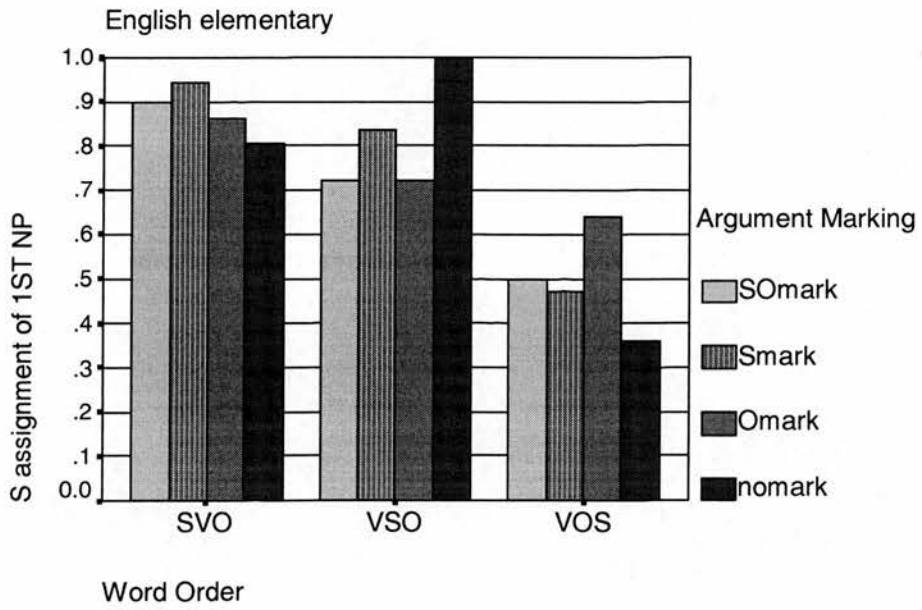


Figure 5.23: English elementary Subject assignment of 1st NP in the 'WO by AM' interaction.

		VSO	VOS			
		nomark	SOmark	Smark	Omark	nomark
SVO	SOmark		***	***		***
	Smark		***	***	*	***
	Omark		***	***		***
	nomark		**	**		***
VSO	SOmark	*				***
	Smark			***		***
	Omark	*				***
	nomark		***	***	***	***
VOS	SOmark	***				
	Smark	***				
	Omark	***				
	nomark	***			*	

*$p < .05$; **$p < .01$; ***$p < .001$

Table 5.8: Tukey HSD tests for the interaction WO by AM in the English elementary group (Subject assignment of 1ST NP).

These results indicate that EaG speakers deploy a S-first strategy in order to interpret V-middle ambiguous utterances (SVO interpretations: 80%). There is also a strong tendency to interpret V-initial ambiguous utterances as VSO (68%). In the EeG data, no evidence has been found for the use of a VO strategy that has been found in English L1 processing.

Errors

The total number of erroneous interpretations in the EeG was 157 (out of 648 utterances; see also general treatment of outliers, section 5.2.5). The minimum number of errors per person was 2, the maximum 16, and the mean 8.72.

In the analysis of variance we found that there was a significant main effect of WO (F_1 (2, 34) = 23.322, $p \leq .001$) and the Tukey HSD test showed that EeG speakers have more problems interpreting VOS than the other two orders (VOS vs. SVO/VSO, in both cases $p \leq .001$). This could be taken as additional evidence of the lack of a VO strategy during L2 processing. Although there are morphological markers indexing the VO interpretation, and despite the predictions that an L1-effect hypothesis have made, EeG speakers have problems with VOS and not with VSO order.

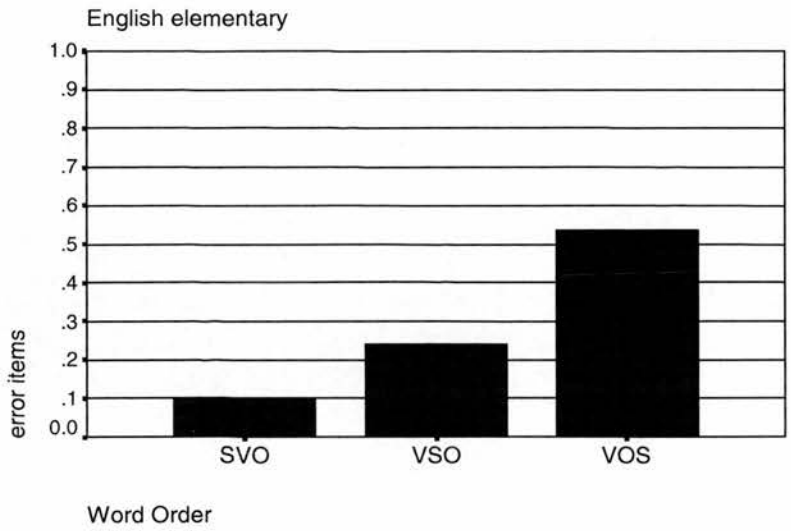


Figure 5.24: English elementary error items in the three WOs.

The effect of AM was not significant neither was the interaction WO by AM.

We could thus claim that EeG speakers do not have problems with -SO- orders and it is only the -OS- sequence that leads to erroneous interpretations. The high VOS error rate supports the hypothesis that over-reliance to the S-fist preference might lead to erroneous interpretation of utterances with an -OS- sequence. It might be the case that EeG speakers, whose knowledge of the morphological paradigms of the L2 is neither complete nor automatized, resort in this strategy, i.e. the 1st NP strategy, which is not used during English monolingual processing and has not been attested in bilingual English processing as frequently as the 'second-NP strategy'.

Reaction Times (RTs)

WO had a significant effect on RTs ($F_1(2, 34) = 21.047$, $p \leq .001$), and SVO was significantly faster than VSO and VOS (in both case, $p < .001$).

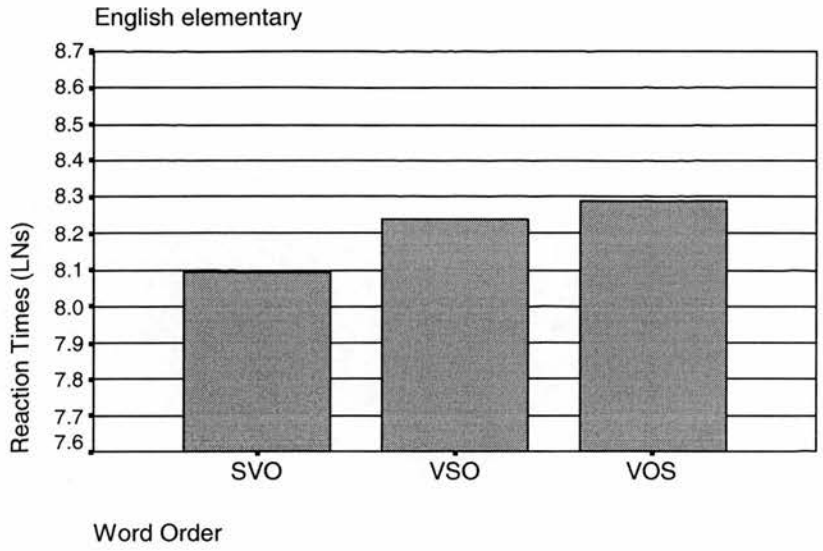


Figure 5.25: English elementary RTs in the three WOs.

The effect of AM was also significant (F_1 (3, 51) = 2.808, p = .049). The Tukey test verified that the observed difference (Figure 5.28) between the slowest -Smark and the fastest -nomark types is significant (p = .03).

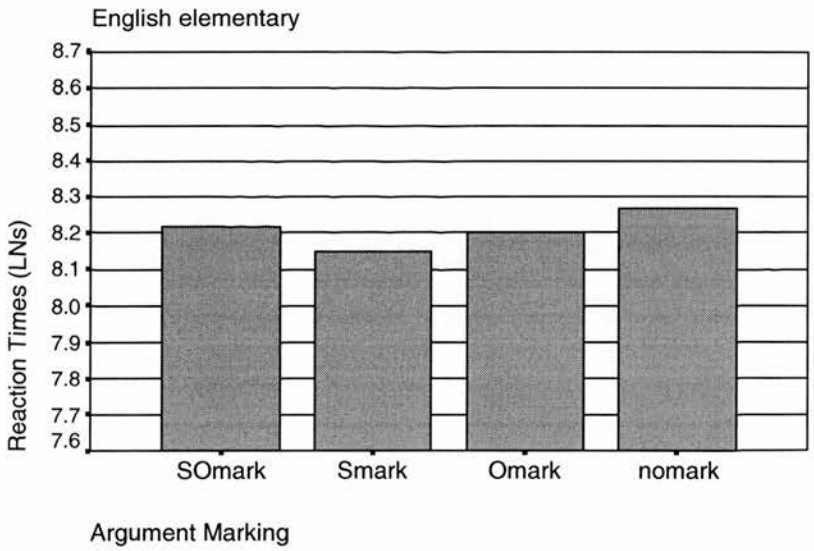


Figure 5.26: English elementary RTs in the four AM levels.

The interaction WO by AM was not significant.

The difference between SVO and VSO cannot be explained under the S-first hypothesis. A more plausible explanation is that this difference does not disprove the

preference for the SO order but it could be an effect of L1 influence: in English, SVO is the basic order, whereas V-initial orders are not grammatical. Moreover, in English the grammatical roles of the NPs are identified via the serial position in which they appear in a sentence and not by means of morphological markers. EeG speakers need more time to process orders that are not L1-like; we can assume that the interpretation of such utterances becomes difficult since the only way to identify Subjects and Objects is by means of morphological markers, which these learners have not yet fully acquired.

Discussion

With respect to S assignment of 1ST NP, EeG learners interpret the majority of V-middle ambiguous utterances as SVO (81%); there is also a tendency to interpret V-initial orders as VSO (67.5%). Since the difference between V-initial and V-middle ambiguous utterances was not significant, we can conclude that EaG speakers use the S-first strategy to resolve ambiguity of this kind. The EeG speakers' errors are also indicative of a S-first preference: VOS appears to be more difficult than SVO and VSO. The fact that SVO and VSO differ in terms of RTs could be due to the L1-structure, which makes SVO an easier order. Moreover, the fact that the main effect of AM was significant and nomark utterances yielded longer RTs than Smark utterances, could be indicative of the sensitivity that these learners have with respect to morphological markers, which could not be attributed to the L1. With respect to the facilitating role that Subject marking has during L2 processing, we could follow a similar argument to the one we proposed for the AeG group, namely that Nom, i.e. Subject case, is the citation form, and also less syncretized than Acc, and for these reasons it could be more 'helpful' during this task. Additionally, long RTs for nomark utterances could also mean that EaG speakers realize the ambiguity of such utterances and they need more time to 'decide' on the interpretation that they will adopt.

In terms of our research hypotheses we can conclude that the presence of a S-first preference is a clear evidence for the lack of the L1-strategy according to which a VP node is constructed after the V is heard. Moreover, although VSO is ungrammatical in the L1, it is comprehensible in the L2 (very few erroneous interpretations occurred in this order), a finding which is also indicative of the lack of a strong L1 influence.

5.3.3.2. English advanced

Subject assignment of 1st NP

The effect of WO was significant in the EaG group too ($F_1(2, 34) = 198.63$, $p \leq .001$). A different pattern, though, was found in terms of the significant differences between the three orders: VOS yielded fewer Subject assignments of 1ST NP than SVO and VSO, but VSO also yielded significantly fewer 1ST NP Subject assignments than SVO (in all cases, $p < .001$). This indicates that VSO was interpreted by EaG speakers as VOS.

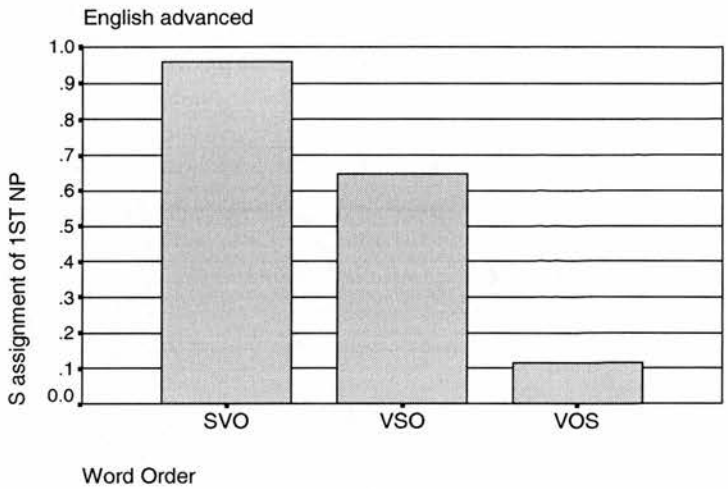


Figure 5.27: English advanced Subject assignment of 1st NP in the three WOs.

The effect of AM was significant too (F_1 (3, 51) = 7.7, $p \leq .001$): in SOmark utterances the Subject role was assigned to the 1st NP significantly more often than it was assigned in Omark and nomark utterances (p = .025, and $p \leq .001$ respectively). nomark type also yielded fewer Subject assignments of 1ST NP than Smark (p = .008).

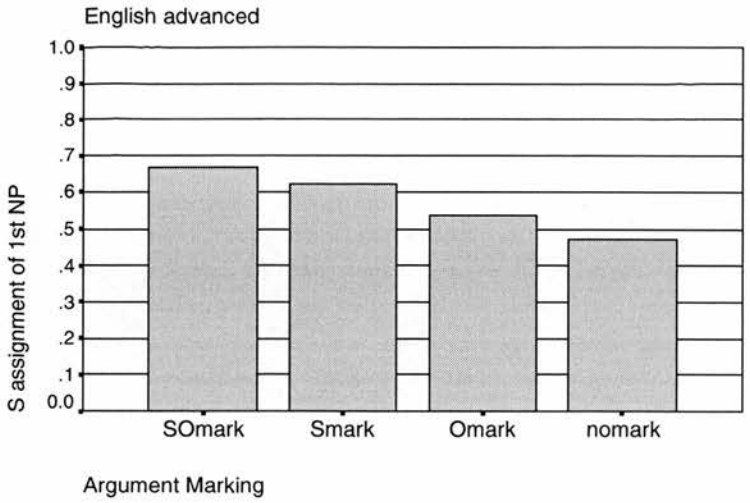


Figure 5.28: English advanced Subject assignment of 1st NP in the four levels of AM.

The significant WO by AM interaction (F_1 (6, 102) = 10.52, $p \leq .001$) and the results from the post-hoc Tukey test (summarized in Table 5.8) indicate that in VSO-Omark and in V-initial ambiguous utterances the 1st NP is assigned the Object role.

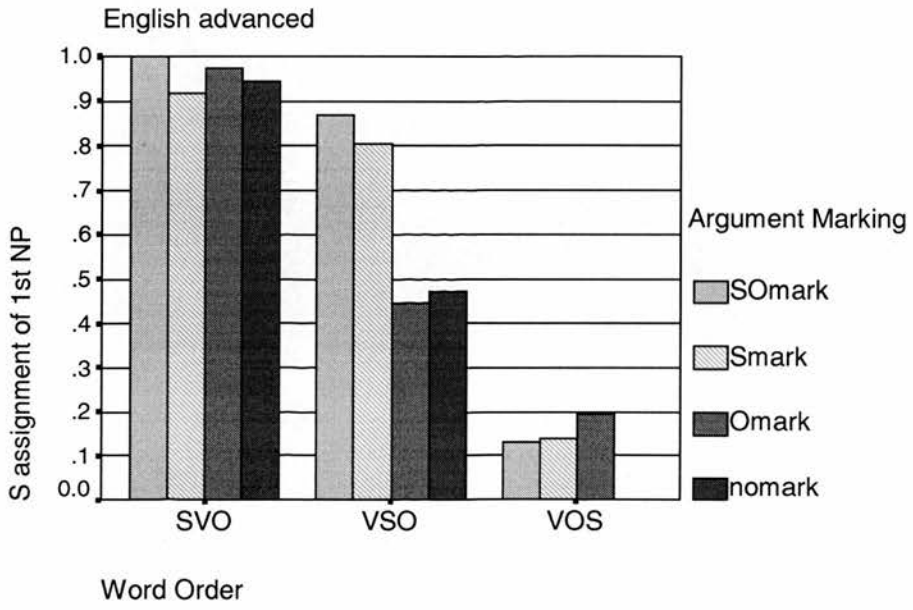


Figure 5.29: English advanced Subject assignment of 1st NP in the 'WOs by AM' interaction.

		VSO		VOS			
		Omark	nomark	SOmark	Smark	Omark	nomark
SVO	SOmark	***	***	***	***	***	***
	Smark	***	***	***	***	***	***
	Omark	***	***	***	***	***	***
	nomark	***	***	***	***	***	***
VSO	SOmark	***	***	***	***	***	***
	Smark	***	***	***	***	***	***
	Omark			***	***	**	***
	nomark			***	***	***	**

*$p < .05$; **$p < .01$; ***$p < .001$

Table 5.9: Tukey HSD results of the English advanced group: Subject assignment of 1st NP in the 'WOs by AM' interaction.

The Tukey HSD tests revealed that VSO-nomark differs from VOS-nomark and that they both differ from all types of SVO. It is important to notice that 76.5% of the ambiguous V-initial utterances were given a VOS interpretation. Moreover, the Tukey test showed that VSO-Omark differs from all types of SVO (for all comparisons $p \leq .001$), i.e. fewer VSO interpretations were made in utterances in which the 1ST NP was unmarked for case and the second NP was marked as the Object. VSO-Omark also differs from VSO-SO/Smark ($p \leq .001$). It looks as if EaG speakers interpret VSO-Omark and VSO-nomark utterances in the same way, using, or better say: overusing the VO strategy in both cases.

We can, thus, conclude that EaG speakers interpret V-middle utterances as SVO, which could be a preference for SVO than for SO order in general. Additional evidence for this assumption comes from the fact that EaG speakers use an O-first strategy in order to interpret ambiguous V-initial utterances. The O-first preference is so strong that it is used even in cases where an -OS- interpretation is impossible, given the morphological marking of the second NP. Since it is rather bizarre to assume that advanced learners do not know the morphological system of the L2 (and that elementary speakers did), the assumption that EeG learners do not pay attention to the morphological markers of the second NP in order to make their decision seems more plausible. The fact that insufficient knowledge of the morphological paradigms is not the reason for this overuse of the O-first strategy can be verified by the findings from the analysis of the error items.

Errors

EeG speakers had a total number of 69 (out of 648) erroneous interpretations of unambiguous utterances. The minimum number of errors per person was 1, maximum 8, and the mean of the group was 3.839.

The analysis of variance revealed a significant main effect of WO (F_1 (2, 34) = 8.201, $p \leq .001$). VSO was more frequently misinterpreted than SVO ($p \leq .001$).

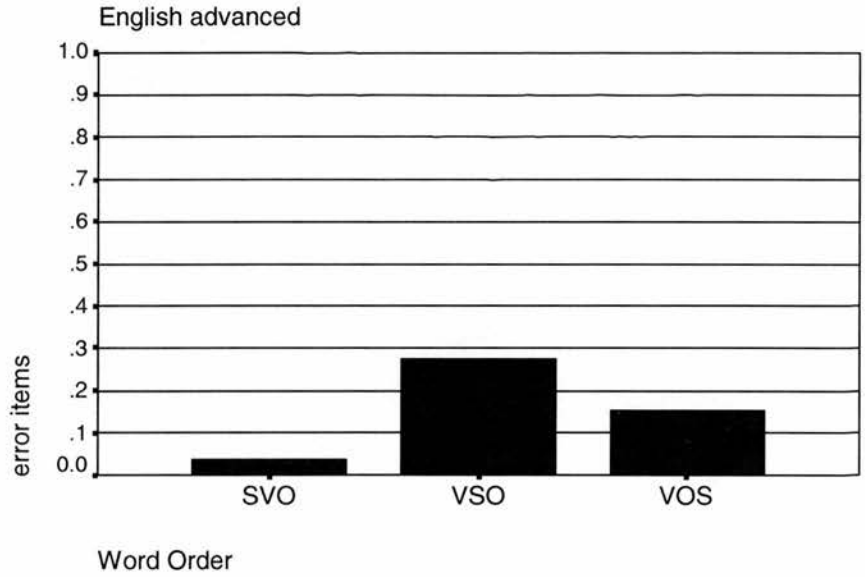


Figure 5.30: English advanced error items in the three WOs.

The effect of AM was also significant (F_1 (2, 34) = 8.256, $p \leq .001$), with –Omark utterances being more often misinterpreted than -SOmark ($p \leq .001$) and –Smark (p = .018).

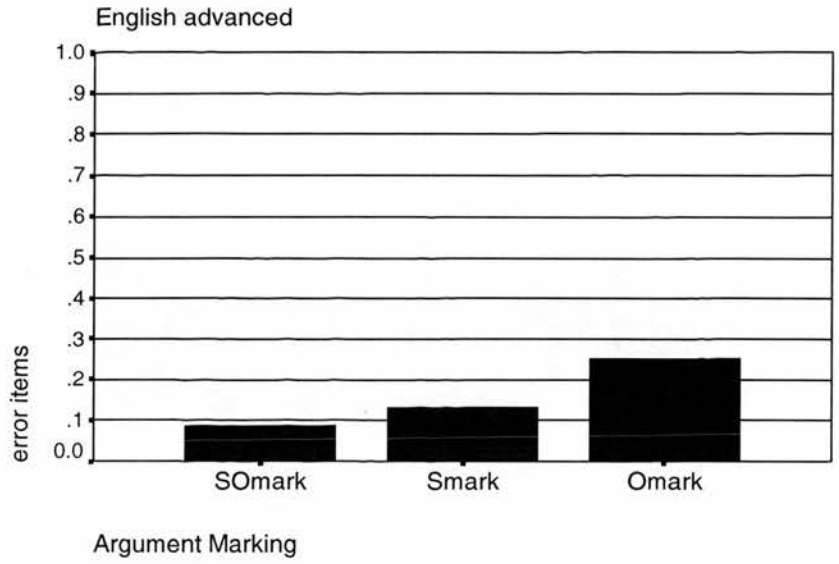


Figure 5.31: English advanced errors in the four levels of AM.

More revealing were the results from the post-hoc Tukey test for the significant WO by AM interaction (F_1 (4, 68) = 6.025, $p \leq .001$): VSO-Omark differs from all types (SO/S/Omark) of SVO and VOS, and from VSO-SO/Smark (for all comparisons, $p \leq .001$).

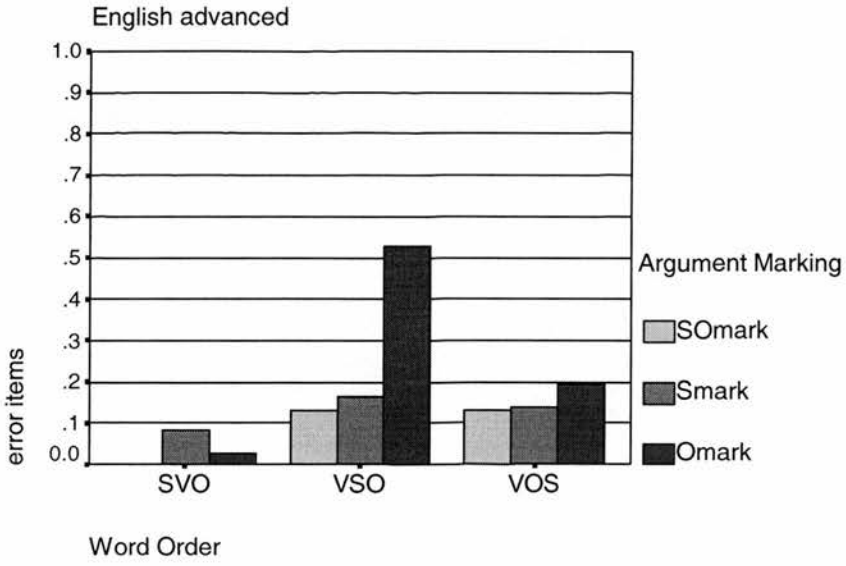


Figure 5.32: English advanced error rate by WO and AM interaction.

This is indicative of the VO preference that these learners have, and which they use in order to interpret utterances in which the NP that comes after the Verb is not marked

for case. The fact that fewer errors are made in all other WO-AM types is an indication that it is not a matter of insufficient knowledge but rather the result of a preference that is characteristic in native English processing.

Reaction Times (RTs)

The effect of WO was significant (F_1 (2, 34) = 12.898, $p \leq .001$), and, like in the EeG group, RTs were faster in SVO utterances than in VSO and VOS (in both cases, $p \leq .001$).

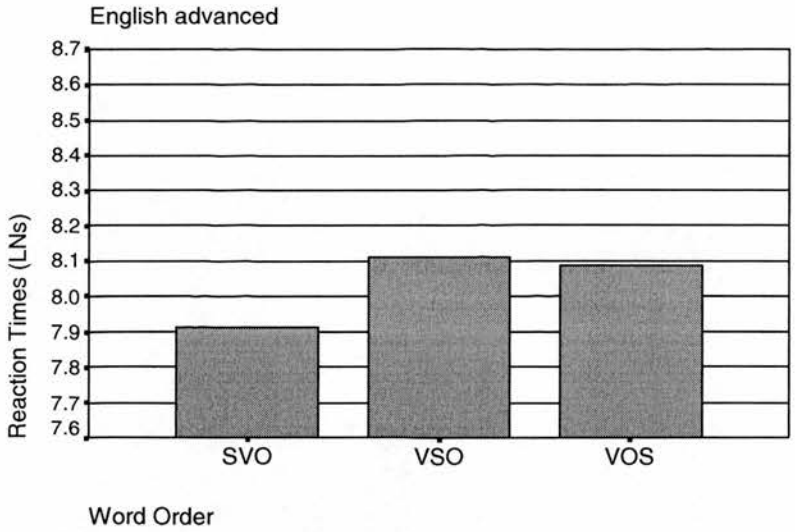


Figure 5.33: English advanced RTs in the three WOs.

The effect of AM was significant too (F_1 (3, 51) = 9.739, $p \leq .001$). In the Tukey test it was found that EaG speakers needed significantly more time in order to interpret Omark utterances than SOmark ($p = .023$) and Smark ($p \leq .001$). RTs for Smark utterances were also faster than RTs for nomark ($p \leq .001$).

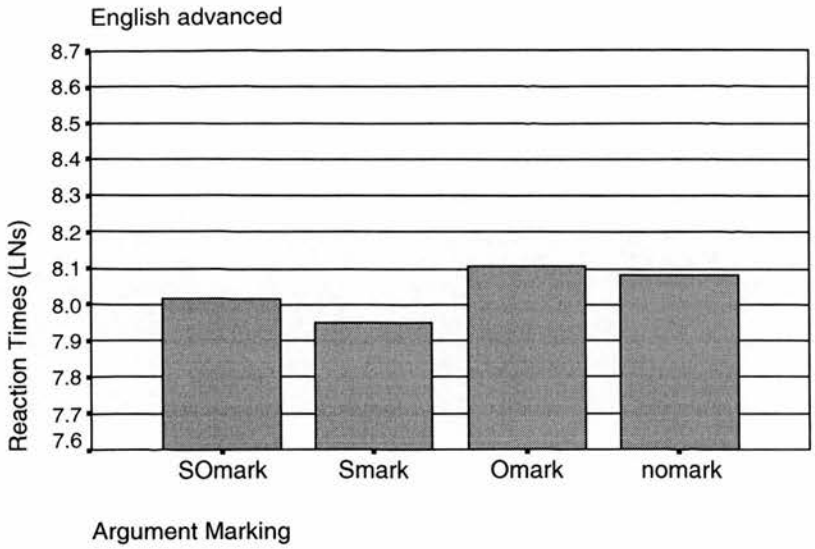


Figure 5.34: English advanced RTs in the four AM levels.

The interaction WO by AM was not significant.

Our conclusion with respect to RTs in the EaG group could be that SVO, the basic WO of the L1, is still the order that facilitates processing. Processing also becomes faster when only the Subject is marked, compared to the slower RTs of utterances in which only the Object is marked, or when neither of the NPs is marked.

Discussion

EaG speakers seem to have a 2ND NP strategy for non-canonical orders, comparable to the strategy they use in L1 processing (section 2.2.2.1): when they hear an unmarked NP after a Verb, they construct a VP node. The result is an accurate interpretation of the utterance whenever the NP that follows the V is marked with Acc (i.e. Object case), and an erroneous one if the 1st NP is not marked for case and the 2ND NP is marked with Nom (i.e. Subject case). It also results in a VOS interpretation of ambiguous V-initial utterances. Additional evidence for the absence of a S-first preference comes from the difference found in RTs between SVO and the other two orders: SVO facilitates processing but not due to its SO order; if that were the case, then VSO would not differ from SVO in terms of RTs.

The VO strategy, on the other hand, does not seem to be an automatic process: the delays in Omark and nomark types can be taken as indications of the lack of an

automatic preference. On the contrary, we can argue that the fast RTs in SVO utterances is due to 'automatic' L1 influence: SVO is the basic order in the L1 and becomes the easiest order in the L2. The same pattern (faster RTs for SVO) was found in the elementary group. The puzzling question is why EaG speakers use the 2ND NP strategy, which is also an L2 influence, but was not used by the elementary group and it only appears at this level of L2 development.

5.3.3.3. English elementary and advanced groups

The results from the elementary group indicate that EeG speakers have a S-first strategy and that they find VOS utterances more difficult than SVO and VSO. More specifically, they interpret V-middle ambiguous utterances as SVO and have a strong preference for a VSO interpretation in the case of V-middle ambiguous utterances. In the case of unambiguous utterances, they make significantly more erroneous interpretations in VOS order than in the other two orders.

On the contrary, EaG speakers seem to fall back to an L1 strategy, namely '2ND NP strategy' (cf. section 2.2.2.1), since they interpret V-initial ambiguous utterances as VOS (as opposed to V-middle, for which they clearly prefer an SVO interpretation). They also overuse this strategy in unambiguous VSO-Omark utterances, which they interpret as VOS.

In the case of RTs both groups are significantly faster in SVO utterances than in the other two orders. AM had an effect for both groups but the patterns of the significant differences was not the same: EeG speakers need more time for the interpretation of nomark utterances, which could be an indication that they realize the ambiguity of these unmarked utterances, whereas EaG speakers need more time for Omark type, which could be seen as the result of two competing factors: the morphological indication and the 2ND NP strategy.

The question that we have to answer is why the L1 strategy is not deployed at the early stages of L2 development and it is only used by the advanced learners. We can assume that this is a result of the difficulty that English speakers have with VOS utterances at the elementary level: EeG speakers have a S-first strategy which is contradicted by the VOS order. If we add to that their difficulty with the morphological paradigm of Greek nouns, we understand that the interpretation of VOS utterances become a hard task for EeG speakers. In order to cope with such 'problematic' data, English learners of Greek resort to their L1 strategy, and indeed they achieve to

minimize their erroneous interpretations of VOS: at the elementary level VOS has significantly more erroneous interpretations than the other two orders, whereas at the advanced level VOS does not differ neither from VSO nor from SVO. The problem is that, at the advanced level, it is VSO that has significantly more erroneous interpretations than SVO. For EeG speakers VOS was the hard-to-interpret order, for EaG VSO. We could assume that, at an even more advanced level, English near-native speakers of Greek will abandon their L1 strategy, which is not as effective as it might seemed, and they will adopt a more effective strategy, a native-like one –just like EaG speakers adopted a new strategy in order to cope with problematic input data.

However, this shift in performance of English-Greek elementary and advanced learners could be also the result of a different analysis that the two Level groups assume for the L2 structure: perhaps EeG speakers adopt a hypothesis that the L2 does not have a VP node, i.e. a flat representation for Greek, which is not a 'wild' option (cf. section 4.2.1). At the more advanced level, they reform their hypothesis for the L2 structure, based on the L2 input, and they adopt a '+VP node' hypothesis which allows them to transfer their L1 strategy. If this hypothesis is along the correct lines, then we would expect to find some differences in the acceptability judgment task too between EaG and EeG speakers and/or native speakers. We come back to this issue in Chapter 8, where we compare results from the three experiments.

5.3.4. Comparing L1 and L2 groups

In this section, we first summarize all findings and then we compare the five groups of speakers of Greek. For this comparison we subtracted the means of each dependent variable (S assignment of 1st NP; errors; RTs) of the native control from each non-native group. This way we could compare the L2 groups on the basis of their difference from the target group. The new variable that results from this subtraction is the 'difference from the target' variable: if the difference from the target is (close to) zero, then there will be (nearly) no difference in the performance of the L1 and the L2 group(s).

Thus, in the Figures that follow, zero represents the mean for the Greek group; the means of the non-native groups that appear in the graphs represent the 'difference from the Greek' value. The closer to zero a point is, the closer to the target the L2 performance.

ANOVAs were run using the new variable (i.e. difference from the Greeks). Since the statistical program we used (Statistica) does not run post-hoc tests for between and

within groups variables, whenever a significant result was found, we ran paired sample *t*-tests (Tukey HSD), changing the level of significance using the formula $\alpha = .05/i$, where i = the number of *t*-tests that each comparison involved.

5.3.4.1. Subject assignment of 1st NP

Summary of results: Native speakers of Greek use a S-first strategy to interpret V-initial and V-middle ambiguous utterances. Albanian speakers of Greek at both levels (elementary and advanced) interpreted V-middle utterances as SVO but they interpreted V-middle ambiguous utterances less consistently. AaG speakers made significantly fewer Subject assignments to the 1ST NP in VSO-Omark utterances than in SVO-Smark ones; these findings could be indicative of a VO tendency that was not found in the AeG group. The VO strategy was clearly used by EaG speakers for the interpretation of V-initial utterances: VSO-Omark and VSO/VOS-nomark types involved fewer Subject assignments of the 1ST NP than SVO types. In contrast, EeG speakers used a S-first strategy in order to interpret V-middle and V-initial utterances.

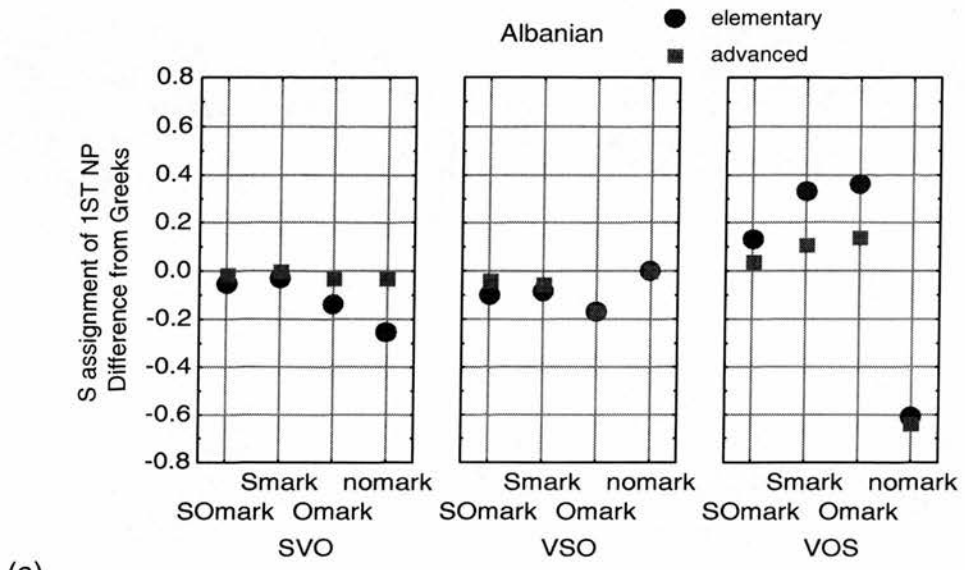
Group comparisons: The main effect of L1 was not significant, as opposed to the significant main effect of Level (F_1 (1, 68)= 10.287; p = .002). The following interactions were also significant: L1 by Level (F_1 (1, 68)= 8.782; p = .004), L1 by WO (F_1 (2, 136)= 10.647; $p \leq .001$), Level by WO (F_1 (2, 136)= 16.133; $p \leq .001$), L1 by WO by AM (F_1 (6, 408)= 2.218; p = .04), Level by WO by AM (F_1 (6, 408)= 5.816; $p \leq .001$), and L1 by Level by WO by AM (F_1 (6, 408)= 2.46; p = .024).

Since the 4-way interaction (L1 x Level x WO x AM) was significant, we ran the *t*-tests to discover the points of difference among groups.

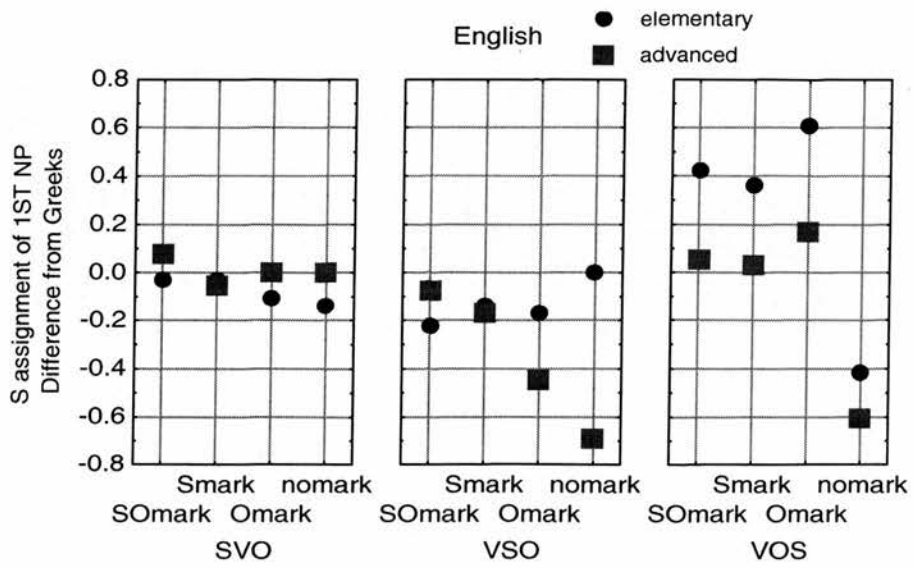
No differences were found in the case of V-middle ambiguous utterances, an indication that all groups preferred an SVO interpretation. Moreover, nearly all L2 groups made significantly fewer Subject assignments of 1ST NP in the case of V-initial ambiguous orders, the exception being EeG group which does not differ from the target (Tukey HSD tests for VOS-nomark: Greek vs. AeG t = 9.457, $p < .001$; vs. AaG t = 9.436 $p < .001$; vs. EaG t = 5.903, $p < .001$).

Our first conclusion could, therefore, be that AeG and AaG speakers use a S-first strategy to interpret V-middle ambiguous utterances but they do not have a native-like performance in terms of V-initial orders, which they interpret either as VSO or as VOS, whereas Greek speakers prefer the former interpretation. As we see in Figure 5.35 (a),

AeG and AaG 'difference from the Greek' mean for VOS and VSO -nomark type is nearly identical. We can assume that, since a VOS interpretation is possible in the experimental context, there is no need for AaG speakers to adopt a clear S-first strategy for V-initial orders.



(a)



(b)

Figures 5.35 (a) & (b): Subject assignment of 1ST NP: 4-way interaction of 'L1 by Level by WO by AM'.

In Figure 5.35 (b), which depicts the English vs. Greek difference, we notice that, in VSO-nomark, EeG speakers behave just like Greeks. With respect to VOS-nomark utterances, although EeG mean difference from the Greeks is not very close to zero

point, the difference was not found to be significant (Table 5.10). In Figure 5.34 (b) we also see that EaG speakers move away from their elementary counterparts and, consequently, from the target. The *t*-test verified that in VSO-nomark utterances, EaG speakers made significantly fewer Subject assignments of the 1ST NP than Greeks and all other L2 speakers (EaG vs. Greek/ EeG/ AeG/ AaG, for all comparisons $t = 8.444$ $p < .001$).

		VSO		VOS			
		Omark	nomark	SOmark	Smark	Omark	nomark
GR vs.	AeG				***	***	***
	AaG						***
	EeG			***		***	
	EaG	***	***				***
EeG vs.	AeG			***			
	AaG			***		***	
	EaG		***	***	***	***	
EaG vs.	AeG				***		

*** $p < .005$

Table 5.10: Subject assignment of 1ST NP: Significant differences from the 4way-interaction of 'L1 by Level by WO by AM' (Tukey HSD test).

Thus, based on the interpretations of V-initial ambiguous utterances, we can re-group the L1 and L2 speakers in the following way:

° Group 1: native speakers of Greek and EeG speakers have a S-first preference that they use in order to interpret V-initial ambiguous utterances.

° Group 2: Albanian speakers, elementary and advanced, do not have a clear preference: they sometimes interpret V-initial ambiguous utterances as VSO, like native and EeG speakers, but they also chose a VOS interpretation significantly more often than native and EeG speakers.

° Group 3: EaG speakers have a clear 2ND NP strategy, since they interpret V-initial ambiguous utterances as VOS.

Not only do EaG speakers use this 2ND NP strategy in unmarked utterances, where the VOS interpretation is possible, they also overuse it in unambiguous utterances, where case marking does not allow for the VOS option: in VSO-Omark type, EaG speakers made significantly fewer Subject assignments of the 1ST NP than Greek natives ($t = 3.915$, $p \leq .001$). AaG and EaG speakers did not differ; EeG speakers only differed from AeG speakers. in terms of VOS-Smark utterances ($p = .004$).

As already mentioned (section 5.3.3.3), the puzzling question is why EaG speakers move away from the target by adopting an L1 strategy. We claimed (sections 5.3.1 and

5.3.3) that this might the result of the difficulty that English learners have with VOS utterances at the elementary stage.

Indeed, *t*-tests verified that EeG speakers made significantly more Subject assignments in VOS-SOmark type than Greeks (t = -7.01, $p < .001$) as well as in VOS-Omark (t = -8.018, $p < .001$). We have assumed (ibid.) that the overuse of the S-first strategy resulted in this difference. In order to cope with the difficult VOS order, EaG speakers abandon the S-first strategy and they deploy a 2^{ND} NP strategy for V-initial orders. The result is a more nativelike performance in unambiguous utterances: EaG make significantly fewer Subject assignments of the 1^{ST} NP than EeG speakers in VOS-SOmark ($t = 5.31, p < .001$), VOS-Smark (t =3.367, $p = .004$) and VOS-Omark types (t= 4.531, $p < .001$), which brings them closer to the target. On the other hand, the interpretation of V-initial ambiguous utterances as VOS is an option that EaG speakers prefer –and there is no reason for them to reconsider their strategy, as far as this type of sentence is concerned, since it is a possible interpretation.

We can assume that EaG speakers will eventually realize the problem that the overuse of the 2^{ND} NP strategy creates –just like EaG speakers realized the problems that the S-first preference created–, since its use leads to erroneous interpretations of VSO-Omark type: in these utterances, EaG speakers made significantly fewer Subject assignments of the 1^{ST} NP than native Greek speakers (t =3.915, $p < .001$).

5.3.4.2. Errors

In the previous section we saw that EaG speakers made significantly fewer Subject assignments of the 1^{st} NP in VSO-Omark utterances than native and non-native speakers of Greek. This could be considered as an indication that EaG speakers make more erroneous interpretations than native speakers. In order to generalize such a claim, though, and before assuming that EaG speakers are not nativelike in terms of their correct interpretations, we need to look at the error items, and see whether the 4-way interaction is significant in this analysis too. Such a comparison could also allow us to test our hypothesis about the sensitivity that Albanian speakers would have with inflectional morphology, as opposed to the English speakers who come from an L1 with no morphological case marking on articles and nouns, we compared the L1 and L2 groups.

Given the results from the previous analysis of Subject assignment of 1^{ST} NP, one could argue that English –elementary and advanced– speakers of Greek have a problem

with the identification of morphological markers, which could lead to the correct interpretation of V-initial unambiguous orders, whereas Albanian advanced are native-like in terms of accurate interpretations, since they do not differ from the Greek controls. The conclusion from these results could be that English learners find it more difficult to decode morphological markers, which encode syntactic relations, than Albanian speakers. This conclusion in turn supports our hypothesis that Albanians will be more apt to use morphological means for the identification of grammatical relations.

We are not allowed, though, to make such a generalization about the correct use of morphological markers during utterance interpretation, since the variable we analyzed was Subject assignment of 1ST NP. As we have already seen (section 5.3.1.2), Greek speakers did make some erroneous interpretations as well. What we want to know now is whether L2 speakers made significantly more or fewer erroneous interpretations than the Greeks.

The ANOVA revealed a significant main effect of Level ($F1(1, 68) = 15.22$, $p \leq .001$), and a significant interaction Level by WO ($F1(2, 136) = 10.486$, $p \leq .001$). The 4-way interaction was not significant. In the case of Level, elementary made significantly more erroneous interpretations than advanced ($t = 4.097$, $p \leq .001$) and native speakers ($t = -8.211$, $p \leq .001$). Interestingly enough, advanced speakers made significantly more erroneous interpretations than native speakers too ($t = -3.547$, $p = .002$).

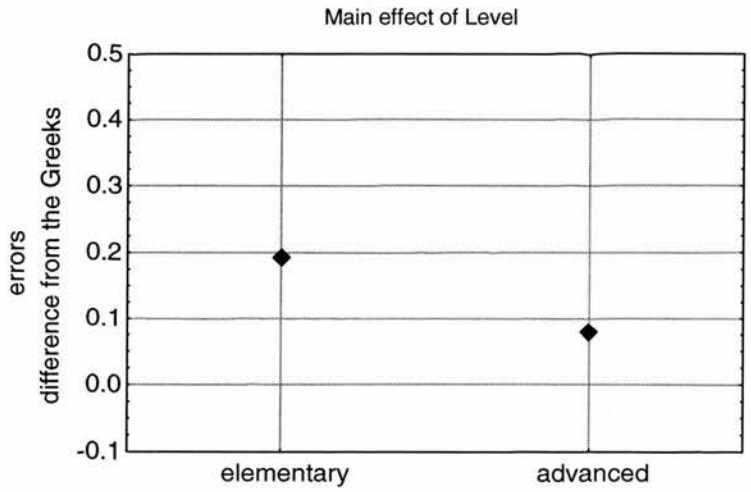


Figure 5.36: Main effect of Level on errors.

Non-native speakers, both elementary ($t = -3.54$, $p = .003$) and advanced ($t = -3.844$, $p < .001$), made more erroneous interpretations in VSO order than native speakers.

Moreover, elementary speakers made more errors in VOS utterances than advanced (t = -5.682, $p < .001$) and native speakers did (t = -9.41, $p < .001$).

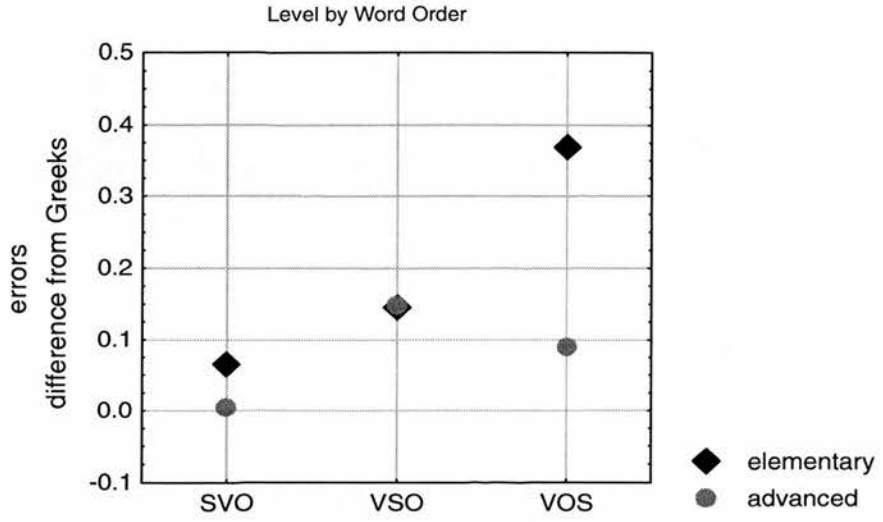


Figure 37: Errors: interaction of 'Level by WO'.

The interactions that involved L1 were not significant: native, English and Albanian speakers of Greek do not differ significantly in terms of error items. Accurate interpretation seems to be a matter of Level of L2 proficiency, not of L1 influence.

5.3.4.3. Reaction Times (RTs)

Summary of results: In the Greek group, RTs for VOS were significantly slower than for SVO and VSO. The interaction WO by AM was significant and all types of SVO were significantly faster than VOS-S. Moreover, SVO-Smark was significantly faster than all types of VOS, VSO-Omark and VSO-nomark. These results show that native speakers of Greek use the S-first preference 'cautiously', only in contexts which this is possible, i.e. nomark types.

In all L2 groups, SVO was significantly faster than VSO and VOS, which we argued might be an L1 effect. Moreover, in the AeG group the interaction WO by AM was significant and all V-initial unmarked utterances required significantly more time to be interpreted than SVO types and VSO-Smark. In the English groups, apart from WO, the main effect of AM was significant too, and elementary speakers needed more time for nomark type, whereas advanced for Omark.

Group comparisons: The main effect of L1 was not significant, as opposed to the significant main effect of Level (F_1 (1,68)= 12.095, $p < .001$). The post hoc t-tests revealed that the elementary group was significantly slower than the advanced (t = 4.235, $p < .001$) and the native group (t = 7.014, $p < .001$). The advanced groups also differ from the target (t = -7.231, $p < .001$).

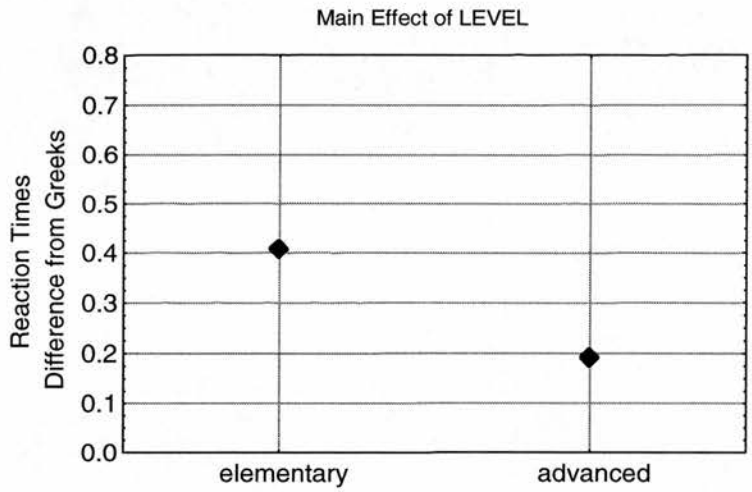
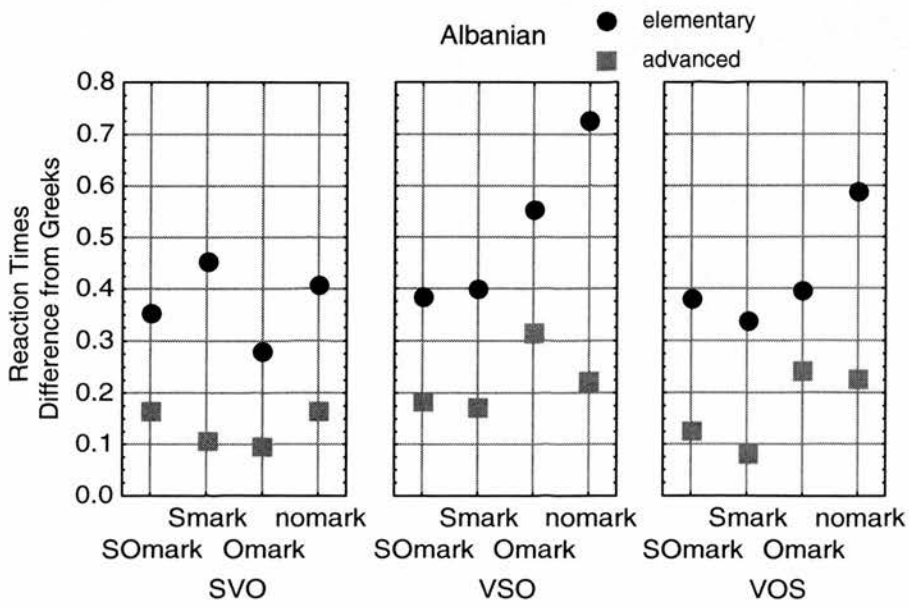
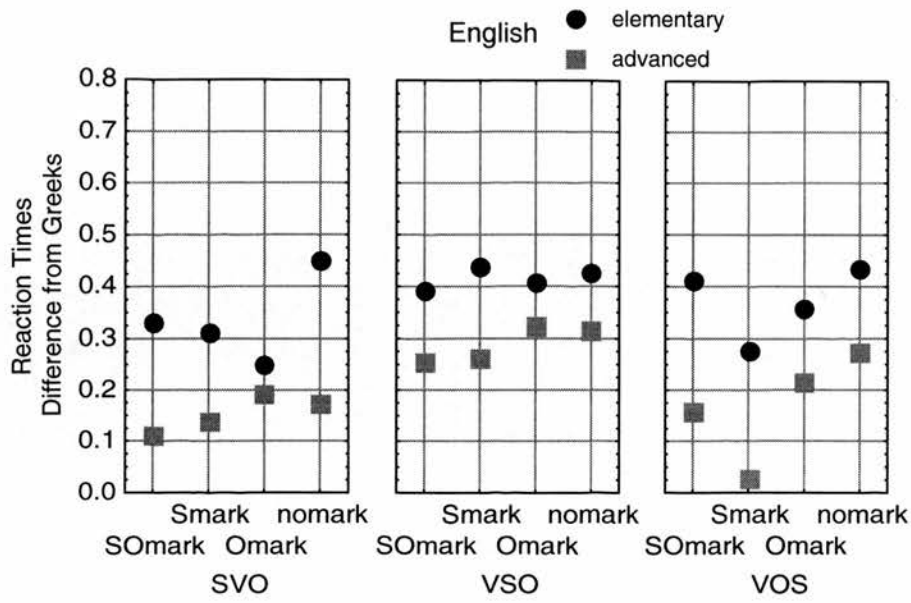


Figure 5.38: Main effect of Level on RTs.

None of the interactions that involved L1 or Level was found to be significant. In Figures 5.39 (a) & (b) we see that both groups of advanced speakers are far from the Greek-control zero point even in SVO utterances; the fact that EaG speakers' difference from the Greek is close to zero in the case of VOS-Smark utterances, cannot make the 4-way interaction significant.



(a)



(b)

Figures 5.39 (a) & (b): RT: 4-way interaction of 'L1 by Level by WO by AM'.

We can therefore conclude that L2 speakers are significantly slower than native speakers of Greek in the task of utterance interpretation, regardless of WO and AM manipulations. In the case of the elementary speakers, such a finding does not come as a surprise: it was our prediction that they will have longer RTs, under the assumption that they do not master the morphological system of the L2 (and possibly because of the difficulty with the lexical items, i.e. vocabulary problems).

In the case of the advanced speakers, one could argue that the reason for the longer RTs is the same: even advanced L2 speakers cannot master the morphological system of the L2, even when their L1 background is a 'fully-inflected' L1, like Albanian, since morphological markers do not transfer and given that these learners have to acquire the L2 morphological paradigm (cf. section 5.1.4). It is also important the fact neither the effect of L1 nor the interaction L1 by Level were significant: Albanian and English learners performed at the same pace during the comprehension task.

5.4. Summary and conclusions

L1 strategies are not always transferred during L2 sentence interpretation: EeG learners do not use the 2^{ND} NP strategy either for ambiguous non-canonical orders or for the unambiguously marked utterances. This finding contradicts previous findings from

English bilingual processing of L2s like Japanese, Chinese or Dutch. However, previous research has also indicated that the 2ND NP strategy was not always used by English L2 learners in non-canonical orders (see, e.g., results from Miao's study, discussed in section 2.2.21). We could therefore assume that transfer of L1 interpretation strategies occurs only in certain cases. The possible reason that might have 'discouraged' EeG speakers from using this strategy with the Greek data could be the fact that they have a different analysis for the L2 and for the L1, which could not support transfer of this processing strategy.

We have argued that the reasons for the 2ND NP tendency could be either the difficulties that the S-first strategy creates in the case of VOS utterances, or the different analyses that L2 learners adopt for Greek: especially for English learners we have assumed that at the elementary Level they might assume that the L2 does not have a VP node, and therefore the 2ND NP strategy could not be deployed. At a later stage, based on evidence from the L2 input, they change their hypothesis and they transfer their L1 strategy. However, we assumed that in order for this hypothesis to be verified, we would also need to have some evidence from the acceptability judgment task for some kind of change in elementary and advanced speakers' performance too.

An alternative hypothesis is that the S-first preference is abandoned because it led to misinterpretation of VOS utterances: EeG speakers make more errors in VOS-Smark utterances than in VSO-Omark. By abandoning the S-first strategy, they manage to make less erroneous interpretation in VOS order at the advanced level. We could assume that at a next developmental stage, they might also abandon the 2ND NP strategy, since it also leads to erroneous interpretations of VSO-O utterances. Further research is required with near-native speakers of Greek in order to verify this assumption.

On the other hand, Albanian speakers, unlike English learners who have clear preferences at both Levels, seem to have two competing strategies, i.e. S-first and 2ND NP, the result being a non-nativelike performance in terms of Subject assignment of 1ST NP. We could assume that the (superficial) similarity between the two languages might be the confounding factor that does not allow for the use of a certain strategy.

Moreover, both elementary groups made significantly more erroneous interpretations in VSO and VOS orders than native speakers, whereas advanced speakers seem to improve their performance in VOS but not VSO utterances. In the case of elementary speakers, errors could be due to the incomplete knowledge of L2

morphology, and the preference for SVO, which also explains why non-native groups did not differ from native controls in terms of SVO. In the case of advanced speakers, however, erroneous interpretations of VSO utterances could be an indication of the 2ND NP preference rather than a result of insufficient morphological knowledge. The fact that the interactions between L1 and the other variables were not significant seem to indicate that accurate interpretation of L2 utterances is not influenced by the characteristics of the L1.

Similarly, L1 did not have an effect on RTs, as opposed to Level: elementary speakers are slower than advanced and native speakers; advanced speakers are still slower than native speakers. This pattern has been found in several previous studies (cf. section 2.2.2.2). We have also assumed that the process of lexical access and that of mapping L2 morphological markers to grammatical functions might be more demanding for L2 speakers, especially at the elementary stage, than for native speakers (sections 3.2.1 and 3.4). The fact that L2 speakers are slower than native controls even in the SVO condition, is indicative of the difficulty that these speakers have to interpret L2 utterances, regardless of whether the WO of the utterance is possible in the L2 or not.

Summarizing, and with respect to our research questions, we could conclude the following for the native and the non-native groups:

Native group: A S-first preference guides native speakers' interpretation of ambiguous utterances: the Subject role is assigned to the 1st NP of the sentence whenever case marking permits such an interpretation. The preference for -SO- order also resulted in faster RTs for SVO and VSO than for VOS orders.

L2 groups: EeG speakers do not use the '2nd Noun strategy' either for the interpretation of ambiguous utterances, or in cases where the identification of the grammatical roles via case markers is problematic. They have a clear S-first strategy which 'drives' the interpretation of all ambiguous utterances and which is also overused in unambiguous utterances.

Conversely, AeG speakers do not resort to one strategy when they have difficulties with the L2 input; although they seem to have a S-first tendency, they do not use it consistently. At the advanced level there is a clear SVO preference (SVO interpretation of V-middle utterances, faster RTs for SVO than VSO/VOS) but the 2ND NP preference is still affecting sentence interpretation of V-initial orders. A similar pattern was also

found in the EaG group, although in this case the 2ND NP preference was a clear strategy, that was also overused in unambiguous utterances. This finding indicates that transfer of L1 strategies is not a 'privilege' of the elementary learners and that during the L2 acquisition process learners might alter their hypotheses about the L2, but not all 'reforms' bring them closer to the target.

Moreover, the fact that all L2 groups were faster when responding to SVO order than to VSO or VOS could be seen as an L1 effect. However, since English learners differ from Greek native but not from Albanian learners with respect to this variable, we could assume that there might be some general SVO preference, which is not directly influenced by the L1. One could argue that SVO might facilitate processing because it is the default option of L2 speakers (cf. the assumptions for the Basic Variety (Klein & Perdue 1993, 1997); cf. also the assumption that SVO is the underling order of natural languages (Kayne 1994)). However, apart from the facilitating role that SVO has in processing, we cannot make any generalizations about the status of this WO pattern in these learners' IL, since SVO did not produce significantly fewer errors than VSO in neither of the two elementary groups. We could seek for additional evidence for this SVO preference in the performance of the L2 speakers during the other two experiments.

Chapter 6

Production Experiment

The aim of the production experiment, outlined in Chapter 4, is to examine the effect of the L1 during L2 speech production, at two different stages of L2 development. Additionally, we would like to see whether certain factors (i.e., the S-first and the 2ND NP strategies, as well as the SVO preference), which have been found to influence utterance interpretation, have an effect on production too. Conceptual hierarchy is another factor that has been found to influence WO preferences of native speakers of Greek in a sentence recall experiment (Branigan & Feleki 1999); the question posed here is whether the animacy of the Object influences WO preferences in a different task, i.e. description of the difference between two pictures.

In this Chapter, we start by formulating the research hypotheses; we then present the materials, the research design and the analysis. The presentation of the data from each group is followed by the comparison of all the groups (native, non-native). We summarize and discuss our findings, in order to draw some conclusions regarding the WO patterns that native and non-native speakers of Greek used during this production task.

6.1. Research hypotheses

6.1.1. Word Order

L1 group: Corpus analyses and previous research on Greek WO have shown that SVO is the most frequent order in written production (see section 4.2.1). The high frequency of SVO could be attributed to its SO sequence, which complies with the S-first preference. If the S-first preference leads speech production, VSO should be equally preferred. SOV, on the other hand, which also has an SO sequence, might not be as frequent as SVO and VSO, because of the constraints that determine its grammaticality and applicability in certain contexts.

On the other hand, it has been claimed that, when Focus and Topic co-exist in a sentence, the preferred order is Topic-Focus (cf. section 4.2.1). We can, therefore, assume that in contexts where the Object becomes Topic and the Subject is the stressed, new information, which also tends to be associated with the end of the sentence (see e.g. Steele 1975 for relevant references and discussion), speakers may be more willing to abandon their SVO preference and adopt a Topic-first strategy. The use of OclVS, or clVOS orders in the data will provide some evidence for such a Topic-first strategy. Clitics are required, because otherwise the Object will be in Focus position, and not in Topic.

We, therefore, predict that the Topic-first strategy will guide native speakers' WO preferences: SVO will be the most frequent pattern in native speakers' production. We also expect to elicit OclVS utterances in contexts when the Object becomes the Topic. However, VSO might be more frequent than OclVS, if the S-first preference is operant in speech production too.

L2 groups: Given that English is an SVO language, and under the assumption that L1 influence will be apparent in language production, we predict that English speakers will exhibit a strong SVO preference, especially during the first stages of L2 development. The 'strong L1 influence' hypothesis at the early stages of L2 development leads to the prediction that EeG speakers will only use SVO patterns, with no sign of VS order.

In the previous Chapter, we saw no strong L1 effect for comprehension at the elementary level. If we assume that the S-first strategy is used both in production and in comprehension, then we might expect to find similar results in the production data too. Contrary to that, we assume that it is only during comprehension that EeG speakers apply the S-first strategy to interpret V-initial utterances. During production, where the L2 offers more than one options, L2 speakers will prefer the one that is closest to their L1, i.e. SVO (cf. section 3.2.1). This mean that EeG, and perhaps EaG speakers will have no reason to abandon their SVO preference during production, since this pattern is not only possible in the L2 but also highly frequent. Moreover, the S-first strategy will not be deployed in production since it is not very useful: even if speakers assume that Greek is a VSO language, they also need command of inflectional morphology in order to be able to use the appropriate markers on nouns. This is not an easy task. L2 speakers at the elementary level are bound to have difficulties with the complex morphological

system of Greek. We assume that at the elementary level, the function-to-form mapping is a process that requires a lot of effort, since learners' knowledge is neither complete nor automatized. Before feeling 'free' to move constituents, L2 speakers have to 'synthesize' them. Since in the comprehension experiment the number of error items in the EeG group was not very high, we can assume that these learners have acquired the basic morphological distinctions, but their longer RTs indicate that they still need time to put their L2 knowledge into use. During production, the difficulty with the declensional paradigms will discourage the use of a variety of WO patterns and their performance will be less nativelike.

In other words, we assume that for production we will have a strong L1 effect because the process of non-SVO production demands more skills than the well-automatized process of SVO production, for the additional reason that speakers have problems with putting the appropriate endings to words; thus, we predict that EeG speakers will resort to WO and will use SVO almost exclusively, in their attempt to facilitate the encoding of grammatical relations.

The same could be true for the Albanian speakers at the same level of L2 proficiency: AeG speakers might use a rigid-WO-strategy during production, since they are not fully at ease with the Greek morphological markers (comparable errors and RTs with EeG speakers in the comprehension experiment). Given that Albanian is an SVO-language, we can predict that AeG speakers will use SVO almost exclusively, like EeG speakers. On the other hand, we can assume that Albanian speakers are more 'familiar' with WO alternations, and they will attempt to use other orders too, before EeG speakers do. We assume, thus, that the L1 characteristics will have an effect on the rate of acquisition, such that Albanian speakers, although they may still not have mastered Greek morphology, will be closer to the target, perhaps not in terms of morphological accuracy (since they did not differ from the English in the comprehension experiment, and we assume they will not differ in the production task too), but in terms of WO variation.

As for the advanced speakers, in the case of the English group, who exhibit a clear 2^{ND} NP preference in the comprehension experiment, we would like to see whether they have a preference for VO, and not VS, sequence in their production. On the basis of the hypothesis that different strategies are used during production and comprehension (section 3.3), we assume that the 2^{ND} NP strategy is only a 'comprehension strategy' which is not used during speech production, because in that latter task EaG speakers are

producing utterances themselves, and they have the time to use their knowledge about the L2 structure and the morphological realization of underlying relations. We therefore predict that EaG speakers will produce VSO utterances, despite the fact that this order was rather problematic during comprehension. However, as already mentioned, EaG speakers may not be willing to abandon the SVO preference, since the production of SVO utterances is a more automatic process than that of non-SVO utterances, and although EaG speakers may use other WO patterns too, they might differ from AaG speakers and from native speakers of Greek in terms of their SVO production.

6.1.2. Object animacy

It has been argued that native speakers of Greek prefer to place conceptually accessible entities in early WO positions, irrespective of grammatical function: in a sentence recall experiment, participants were more likely to recall SVO sentences as OVS when the Subject was inanimate; conversely, OVS sentences were recalled as SVO when the Subject was animate (Branigan & Feleki 1999). However, it was also found that participants were more likely to recall sentences in the alternative form to that originally presented when this resulted in the preferred SVO order than when it resulted in OVS order (ibid.; cf. McDonald, Bock & Kelly 1993).

If conceptual accessibility[1] has an affect on WO, we can assume that, during language production, speakers might prefer an Animate-Inanimate sequence, especially when the inanimate is also the Object of the utterance, given the S-first preference. The prediction that follows is that an inanimate Object should rarely –if ever– precede an animate Subject. This prediction, however, might contradict the hypothesis made for WO preferences, according to which Objects might appear before Subjects, in contexts where the Object is the Topic. If conceptual accessibility has a stronger effect on WO preferences than Topic-Focus sequence, then inanimate Objects will not appear before animate Subjects. If the preference for a Topic-Focus sequence is stronger, then there will be cases where speakers will prefer an OS sequence, even if than means that the inanimate entity has to be produced first.

[1] i.e. 'the ease with which the mental representation of some potential referent can be activated in or retrieved from memory' (Bock & Warren 1985: 50).

6.1.3. Case marking

In production, we do not consider nomark utterances as ambiguous, since context guides their interpretation; neither are we worried about garden-path utterances, which will not differ from the other utterances in which both constituents are marked for case (cf. comprehension experiment). And, of course, we do not predict errors in the native group with respect to case assignment.

On the contrary, we would like to see whether the use of a variety of WOs is related to the L2 speakers' accurate use of verbal inflection as well as of morphological markers. With respect to case marker, the question addressed here is whether L2 speakers of Greek resort to SVO as a means of distinguishing Subjects from Objects during the early stages of acquisition, when they do not fully master the morphological system of the L2. We also predicted that due to this reason (i.e. difficulties with the L2 inflectional morphology) not only English but even Albanian learners could be more 'rigid' during production. Given the significant differences in error items in the previous experiment (section 5.3.4), we predict that advanced speakers will be not only more flexible, in terms of the WO patterns they use, but also more accurate, with respect to case marking, than elementary speakers; however, they might differ from native speakers especially in terms of morphological accuracy (cf. ibid.).

6.1.4. Summary of the hypotheses and possible scenarios

The above hypotheses and scenarios could be summarized as follows:

Native group: SVO, the most frequent WO in Greek written production, will be the most frequent pattern in speakers' speech production too. We expect to find that native speakers will also produce VSO utterances, because of its SO sequence and its applicability to a variety of contexts, as well as OclVS, in contexts where the Object is the Topic. With respect to animacy effects, we predict that they will not be as strong as the Topic-first preference, and that inanimate entities will appear before animate ones.

L2 groups: SVO will be the dominant pattern in L2 speakers' production too. In the case of elementary speakers, this SVO preference will be stronger, mainly due to the insufficient control over L2 morphological markers and the difficulty they will have with the complicated Greek declensional paradigms. On the other hand, if there is an L1 effect on the rate of L2 development, we expect that Albanian speakers will start using other, non-SVO, orders before English speakers. At the advanced level, we predict that

English speakers will use VSO, an order that was hard for them to interpret during the comprehension experiment, under the assumption that the 2ND NP strategy is used only for utterance interpretation and not for production. Thus, we assume that EaG and AaG speakers' performance might not differ in this task with respect to the use of V-initial orders. However, it might differ in terms of the SVO use, if EaG speakers still prefer the well-automatized process of SVO production.

6.2. Method

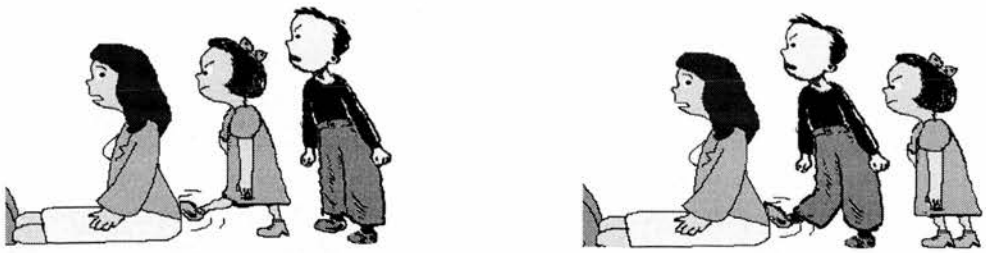
6.2.1. Task

In order to test these hypotheses and elicit more non-SVO orders, we used a 'tell the difference' task and not simply a picture description one, since the latter is more bound to bias an SVO usage than the latter. Participants first described a picture that was presented to them; then they were given a second picture and they were asked to tell the difference between the two, using a specific verb that was also presented in a separate card. It is these latter responses that were counted as our target utterances. The variables that we manipulated in this experiment were the animacy of the Object and the possibility of its topicalization. Subjects were always animate, +/-human, as in the comprehension experiment.

6.2.2. Material and design

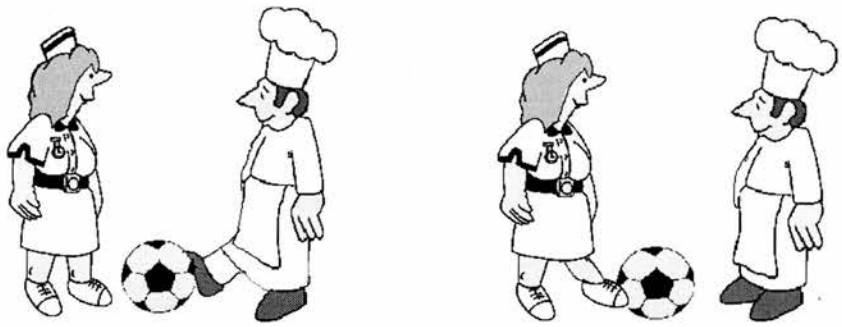
It was important to control for the Verbs that participants would use, to make their oral data comparable to their comprehension data. For this reason we used 9 verbs that were also used in the previous experiment plus 4 more that were added as a result of the additional factor of this experiment (i.e. Object animacy; see Appendix III).

These Verbs differ in terms of the thematic roles they assign to their arguments (cf. comprehension experiment). Each verb was used with three different conditions, with three different pairs of pictures: In one pair of pictures, the 'O-animate' condition, the animate Object remained the same in the two pairs, and only the Subject was different. This way, the Object could become the Topic in the 'describe-the-difference' utterances (Pictures 6.1).



Pictures 6.1. O-animate condition

In the second pair of pictures the Object entity was kept the same too, but this time it was inanimate (O-inanimate condition; Pictures 6.2).



Pictures 6.2. O-inanimate condition.

A significant difference between -OANIMATE-S- and -OINANIMATE-S- utterances, would indicate that animacy has an effect on WO preferences. Since the Object in these two pairs (O-animate and O-inanimate) remain constant in both pictures of each pair, we can say that they are two sub-cases of one condition, namely O-same. The latter pair differed from the previous two pairs, because the Object in the two pictures was not the same (O-different): the one animate entity that was the Subject in the first picture became the Object in the second picture (see also Pictures 5.1). Here the Object could not become the Topic and no OS utterances would be used.

The intention was to manipulate WO: we predict a stronger preference for SVO in the O-different condition, since the Object cannot be the Topic. Conversely, native speakers should use more OclVS, or (cl)VSO utterances in the O-animate condition, because the Object would be the Topic in the second picture and could thus appear in an early position. In the case of O-inanimate the production of fewer OclVS utterances could be an indication of the preference for animate entities before inanimate.

As for case marking, we tried to use pairs of pictures that depicted entities which, when used as Subjects or Objects, would have to be either clearly marked (feminine or masculine nouns) or unmarked (neuter nouns) for their grammatical function. Of course,

the problem with production data is that participants could always use some other lexical item than the one originally planed; e.g. instead of the masculine noun *andras* '*man*' they could also use the neuter noun *palikari* '*young man*'; or instead of the neuter noun *moro* speakers can also use the masculine *bebis*, both meaning '*baby*'. Moreover, a lot of Greek feminine and masculine nouns can become neuter by the productive, diminutive ending *-aki* (meaning 'little'): e.g. *o elefadas* *to elephadaki*, '*(little) elephant*'. It is also a frequent phenomenon, L2 speakers (as well as children learning Greek as a native language) to assign the wrong gender to the noun and use it in a non-target way; they could say, for example, **o aghoris* (masculine) instead of *to aghori* (neuter), '*boy*' (for gender assignment and case marking in Greek L1 and L2, see also Theophanopoulou-Kontou 1973; Mangana 1998; Mangana & Papadopoulou 2002).

Pictures: although the verbs that were used in this experiment were the same as those used in the comprehension experiment, pictures differed so that participants would not directly connect the two experiments. Thus, pictures were either totally different or slightly changed. The exception was the (intended) nomark type pair of pictures, which were the same as those used in the comprehension experiment (Pictures 5.1). Moreover, since the comprehension experiment involved experimental pictures with only two, animate, entities, we had to create new pairs of pictures for the O-inanimate and the O-same conditions.

Usually pictures depicted 'strange' situations (see Pictures 5.1, 6.1 and 6.2). The reason for that was to discourage people from using 'familiar' structures, and to make sure that they would not be primed by frequencies of verbs and nouns in 'standard' situations. In the pictures used for this experiment, as for the pictures of the comprehension experiment, we controlled for the position of Subjects and Objects, but this time, in the case of O-same condition, the three possible positions of Subjects and Objects were on left, middle, or right side of the picture. Subjects appeared equally often on the left, (middle,) and right side of the pictures. Pairs of pictures were presented in random order; the order in which the two pictures of each pair were presented was also random.

Verbs were pre-tested in order to verify there is not preference for a certain order or for a certain structure (using the same procedure as the one used for the comprehension experiment). We found that the 18 participants[1] used these verbs more often in SVO

[1] others than those who participated in the actual experiment

order and only few of them (3 participants out of 18) in VSO order. It is important to notice here that each person produced either SVO or VSO sentences, and there was only one case of a person who used one VSO sentence whereas his other sentences were in SVO order. No other 'combination' of the two orders was found in the same person's responses.

Pairs of pictures were also pre-tested, so that none of the two pictures of each pair would be more 'plausible' or 'realistic' than the other (see Appendix III for an example).

6.2.3. Procedure

Participants read the instructions for the experiment in Greek, in order to avoid priming of L1 structures. By the instructions, participants were informed about the procedure of the experiment and were given an example.

Participants were informed that the researcher was going to show them one picture and one verb, which would appear on two separate 'cards'. They would have to describe the picture they would have in front of them, using the given Verb at least once. Participants were informed that each verb would be presented in the first person singular of present tense (the citation form for Verbs in Greek), and that they would have to change the person and/or number in order to describe the picture. Then the researcher would present them another picture that would be (slightly) different from the first one, and participants would have to tell the difference between the two pictures by using the same given verb.

After participants had read the instructions, they were given 3 different 'boxes' with small cards in them; the small cards depicted entities similar to those they were going to see in the pictures during the experiment. In one box there were human entities, in the other box there were pictures of non-human, animate entities (birds, animals), and in the third box there were the inanimate entities that participants were going to see in the experimental and filler pictures (see Appendix III). Each card depicted one entity; below each picture there was written the Greek word for that entity without its ending, i.e. the stem of the word. In Greek, Nom form is the citation form of nouns. We did not use Nom forms because this is the Subject case and we did not want to prime the use of such forms. Participants were asked to go through the little cards, and make sure that they were familiar with all the words; they were told that they could ask questions about the declension classes of these nouns, if they wanted too. This way we hoped to prime the use of certain lexical items that were used in the comprehension experiment too. We also

wanted to familiarize participants with the words that they were going to use, and help them overcome their 'fear' that they might not know or remember some them. Participants were also told that they could keep some of the cards in front of them during the experimental session.

Once participants were ready, the practice session begun. During this session, participants saw 16 pairs of pictures, along with 4 different verbs, other than the target verbs. The aim of the practice session was not only to familiarize participants with the whole procedure, but also to make participants –especially elementary speakers– feel less stressed about the task.

During the experimental session that followed, participants saw 36 experimental pairs, along with the 12 experimental Verbs. There were also 35 pairs of fillers, similar to those in the comprehension experiment, which were used in random order. We have to report, though, that not all pairs of fillers were used with all participants. With some of them, mainly from the elementary groups, we used half of the fillers (i.e. two pairs of target pictures were followed by one pair of fillers). This was done because learners found the task too demanding –and too time-consuming. We, too, wanted to keep the duration of the task at a feasible length.

The duration of the whole procedure varied according to the level of proficiency in the target language: native speakers completed the whole task in 20 - 30 minutes, approximately; advanced speakers' minimum time was 25 minutes and the maximum 45 minutes; elementary speakers' minimum time was 40 minutes and the maximum time 65 minutes.

Practice and experimental sessions were taped-recorded (using either a Pansonic mini cassette recorder RQ-L309, or a Sony DAT recorder), and then transcribed (see Appendix III for an example of a transcription).

6.2.4. Analysis

From the transcribed documents, we extracted all utterances in which the target Verbs were used, either while participants were describing the picture, or when they were telling the difference (target utterances). Although our main aim is to examine the utterances with which participants describe the difference between the two pictures (i.e. the 'difference' utterances), we also looked at the 'description' utterances, so that we would be able to tell whether: a) our task served its purpose (i.e., more non-SVO utterances were produced in the 'tell the difference' task); b) there were some other

WOs that were not used during the 'tell the difference' phase but were used for the description of the first picture and would help us have a more complete picture of speakers' use of WO patterns.

All utterances were mainly categorized in two different groups: 'WO utterances' which included all main/ *oti* –clauses that speakers produced, and 'other utterances' group, which included all subordinate and elliptical clauses (i.e. utterances with missing constituents, either Subjects, Objects and/or Verbs). The two latter types of clauses were excluded from the 'WO utterances' because a) elliptical clauses cannot be categorized into one of the WOs of non-elliptical utterances; and b) in subordinate clauses the order of the constituents is not as free as in main/*oti*- clauses. Thus, for example, in relative clauses like (30), the 1st constituent is always and NP, and in *na*-clauses like (31), the first constituent is always a Verb.

(30) [to moro….] to opoio moro to kratai o babas
[the-baby…] the- who- baby.NOM/ACC it-clitic holds the-father.NOM
'[the baby...] that the father is holding' (gr; MMA[1])

(31) [vlepoume] na maloni o elephantas to papaki
[see.we] to scolds the-elephant.NOM the-duck.NOM/ACC
'[we see] that the elephant is scolding the little duck' (gr; MMA)

Utterances like (32) and (33) were also included in the 'other utterances' type, since the target verb is not used in a main clause. Additionally, utterances like these were considered as 'problematic' in respect to their case marking: the Subject of the target Verb can appear in Nom (32) but also in Acc (33), as it can receive case from the verb of the main clause. Given that (33) involves other mechanisms than those assumed for the construction of main clauses, we decided to exclude both types of *na*-utterances.

(32) edho vlepume tora i jaja na maloni to moraki
here see.we now the-grandmother.NOM to scold the-little-baby.NOM/ACC
'here we see that the grandmother is scolding the baby' (gr; ATZ)

(33) edho vlepume tora ti vassilissa na akumpai ton skilo
here see.we now the-queen.ACC to touches the-dog.ACC
'here, we see now that the queen is touching the dog' (gr; ATZ)

[1] the first abbreviation denotes the language x level group: gr (Greek); alel (Albanian elementary), etc. The second abbreviation represents the participant's 'identification': the capital letters used here are the initials from participants' names (1st letter) and surnames (2nd and 3rd letters).

Oti-clauses can also be used as the Object of another verb, but they are totally different from *na*-clauses. It is worth noting that, in the data, *oti*-clauses were most frequently used in the phase '*i dhiaphora ine oti...*', '*the difference is that...*', i.e. as an 'introductory' phrase, which would also allow participants to have some extra time to make sure they have spotted all the differences in the two pictures (see also example (37) below). In any case, the Verb of the main clause cannot assign case to the Subject of the *oti*-clause. Thus, utterance (34) is grammatical whereas (35) is ungrammatical. (36) could be used instead of (34); in fact, many utterances of that kind are attested in the data, but none like (35).

(34) edho vlepume oti o janis fonazi ti maria
here see-we that the-John.NOM. calls the- Maria.ACC
'here we see that John is calling Maria' (gr; AaG & AME)

(35) * vlepume ton jani oti fonazi ti maria
see-we the-John.NOM. that calls the-Maria.ACC

(36) vlepume ton jani pu fonazi ti maria
see-we the-John.NOM. that calls the-Maria.ACC
'we see John who is calling Maria'

Moreover, *oti* as a single word or in verb-less phrases was also used as a means of delaying the response, until the participant has noticed the difference, e.g. (37).

(37) i dhiaphora, otiii, eee, i ghata aghapai ton elepanta
the difference, thaaat, um, the-cat.NOM loves the-elephant.ACC
'the difference, that, um, the cat loves the elephant'(gr; KGO)

For each group of speakers, we first looked at the 'picture-description' utterances, and present the actual numbers of 'WO utterances' and 'other utterances'. We then turned numbers into percentages, by using the total number of all responses for each group, i.e. 648 (12 verbs used 3 times each 12 x 3 = 36 utterances per person x 18 participants for each group = 648 total number of utterances per group). After examining the 'WO' – 'other utterances' ratio, we concentrate on the WO utterances.

We used the same procedure to look at the utterances that describe the difference between the two pictures. Here, again, we first report numbers, then percentages of 'WO' and 'other utterances' and examine whether the SVO percentage is lower than the one found for the description utterances, and whether other orders were used in the two

descriptions (picture description vs. description of the difference). We then focus on the three experimental conditions (O-different; O-animate; O-inanimate), and we investigate the different WOs that were produced in each one of them. Finally, we look at the case marking of the NPs used in the target utterances, in an attempt to examine whether speakers from the two different L1 backgrounds perform in a comparable way in terms of morphological accuracy, but also in attempt to discover whether 'more accurate' speakers use a variety of WOs.

After looking at the performance of each group separately, we compare the L1 and L2 groups, and then we draw our conclusions about their performance in this task.

6.3. Results

6.3.1. Greek native

6.3.1.1. Picture description

In order to describe the first picture of each pair, native speakers of Greek used 62% of the times WO utterances, i.e. utterances that could be classified in one of the possible WOs in Greek, and 38% of the time other types of utterances, such as relative (*pou/ o opios*), *na*-clauses, or elliptical utterances (Table 6.1). SVO pattern was used 56% of the times, whereas VSO and OclVS followed, with a huge difference from SVO: 2.62% and 2.16% respectively. Some other patterns were used as well, but their frequency was very low.

	SVO	**SclVO**	**OVS**	**OclVS**	**VSO**	**VOS**	**SOV**	**other**	*total*
n	363	2	1	14	17	2	2	247	*648*
%	56	0.3	0.15	2.16	2.62	0.3	0.3	38.11	*100*

Table 6.1: Greek native production from the picture description task: numbers and percentages of all responses.

It is interesting, though, to notice that SclVO, VOS and SOV appeared with the same frequency in native speakers production. Especially for SOV we have to notice that we did not expect this order to appear at all. Both SOV utterances, presented in (38) and (39), were used with the verb *koitazi* '*look at*' [1], and the Subject in both utterances

[1] *kitai* and *kitazi* are two versions of the same verb; we consider it to be the same since they do not differ in past tense: *kitazo/ kitao, kitaksa*. The same holds for other verbs in Greek, like e.g. *pigeon/ pao*, '*go*', where two different forms are used in the same contexts with the same meaning. The only difference that we can find is that *pigeno* and *kitazo* could be characterized as more formal.

was the personal pronoun *afti* '*she*', which is morphologically ambiguous, as it can be Nom or Acc. The Object, in both cases, was inanimate and stressed, since it was in Focus position. Even more interestingly, both speakers produced these SOV utterances while describing pictures about which they were not 'certain', i.e. they were not sure whether the Subject *she* was looking at the specific Object they mention; we can, therefore argue that these SOV utterances express uncertainty, and were used when the Focused Object was 'in doubt'.

(38) mallon ke afti tis eksetasis kitazi
perhaps and she the.ACC tests.NOM/ACC looks
'maybe she is looking at the tests too' (gr; SKA)

(39) eno afti tin tsanta tis kitai
while she the.ACC bag-NOM.ACC her looks
'while she is looking at her bag' (gr; VNI)

6.3.1.2. Description of the difference

Regarding the utterances that were produced for the description of the difference between the two pictures of each pair, we found that the percentage of the 'other utterances' (elliptical & subordinate) is lower now (25%; Table 6.2): participants used 'WO utterances' in order to respond to the question *'what is the difference now?'*. We also see that the SVO percentage is lower; VSO is again the second more frequent pattern and the ratio between the two is now smaller, compared to the difference between SVO and VSO in the picture description condition. Moreover, we notice that different orders are used in this task; especially clicits are more frequent now; this should not come as a surprise since the clitics are used as an index, which 'ties' the Object of the utterance with some entity that has been mentioned before.

	SVO	**SclVO**	**SVSO**	**OclVS**	**VSO**	**clVSO**	**VOS**	**clVOS**	**OSV**	**other**	*total*
n	332	1	3	21	103	16	8	1	1	162	*648*
%	51.2	0.2	0.5	3.2	15.9	2.5	1.2	0.2	0.2	25	*100*

Table 6.2: Greek native production from the description of the difference: numbers and percentages of all responses.

The ANOVA we ran to compare the responses in the two different tasks (Response Type (WO/ other utterances) x Task = 11 x 2 =22), revealed a significant main effect of Response Type (F_1 (10, 170) = 53.235, $p \leq .001$), and a significant interaction between Response Type and Task (F_1 (10, 170) = 8.562, $p \leq .001$). The post-hoc tests of the

interaction indicated that the significantly more VSO utterances were produced for the description of the difference than for the picture description ($p < .001$). Similarly, clVSO utterances were significantly more frequent during the second task than during the former ($p = .003$). Finally, elliptical and subordinate clauses were less frequent during the description of the difference than during the description of the picture ($p < .001$). On the other hand, there was no significant difference between the SVO utterances that were used in the two tasks, despite the fact that fewer SVO utterances were produced for the description of the difference. Similarly, although OclVS utterances are more frequent in the second task, the difference is not significant.

We can conclude that the 'description of the difference' task elicited more WO utterances. Moreover, by means of this task, we managed to elicit more VSO utterances, but we did not managed to lower the number of SVO utterances, or to raise the number of OclVS to a significant level.

With respect of the 'other' type of utterances, in Table 6.3, we report some of the structures produced by native speakers which will be discussed in the following sections, where we present the non-native data. The experimental verbs never appeared in passive voice, and there where no OV utterances. There were a lot of (cl)VS utterances (11%) and a very small number of the structure *'it is X who is doing Y'* (1%).

	it is X who is doing Y	VS	clVS	OV	PP	Passive voice
total	7	13	56	0	22	0

Table 6.3: Greek native production: numbers of 'other' utterances (elliptical, subordinate, etc) produced during the description of the difference.

A final remark with respect to the kind of utterances produced during the two descriptions: although V-final utterances are extremely infrequent in the data, it is worth noting that they are not less infrequent than the VOS utterances, or the OVS ones. It is also interesting to notice that, as in the SOV utterances, in the OSV utterance that was produced for the description of the difference, (40), the Subject is again a personal pronoun *aftos*, '*he*', the difference being this time that it is clearly marked for case. Additionally, it was also used when the speaker was not absolutely sure about the interpretation of the picture.

(40) tora tin tileorassi aftos aghapai
now the.ACC television.NOM/ACC he.NOM loves
'*now he loves the tv set*' (gr; KEM)

We also notice that in (40) the inanimate Object comes before the animate Subject, which brings us to the hypothesis about the effect of conceptual accessibility and our hypotheses about the target WO utterances to which we will now turn.

Objects

In Table 6.4 we summarize the percentages of the target utterances that were used in the three different Object conditions (for the actual numbers, see Table 1, Appendix III).

		SVO	**SclVO**	**SVSO**	**OclVS**	**VSO**	**clVSO**	**VOS**	**ClVOS**	**OSV**	*total*
	O-different	25.7		0.2	0.2	7.8	0.4				*34.4*
Object	O-animate	20.8	0.2	0.2	2.5	6	1	0.62			*31.3*
same	O-nanimate	21.8		0.2	1.7	7.4	1.9	1.03	0.2	0.2	*34.4*
	total	*68.3*	*0.2*	*0.6*	*4.3*	*21.2*	*3.3*	*1.7*	*0.2*	*0.2*	***100***

Table 6.4: Greek native production: percentages of target utterances in different Object conditions.

Out of 68% of SVO utterances that were produced in total for the description of the difference, 26% were used in the O-different condition, 20% when the Object was the same and animate, and 22% when the Object was the same and inanimate. The percentages of VSO are nearly identical in the three conditions: 8% in O-different; 6% in O-animate and 7% in O-inanimate. The only percentage that seems to rise is that of OclVS, which is 2.5% in the case of O-animate utterances and 2% for O-inanimate utterances, compared to the 0% of the O-different condition. Similarly, clVSO is used more frequently when the Object is the Topic (O-animate/ inanimate). A small percentage of VOS utterances was found only in the O-same condition (O-animate and O-inanimate: 2%). SclVO, clVOS and OSV are only used in the Object-same condition, but the percentages are nearly zero.

In order to examine whether the differences among WO patterns were significant, and whether the status of the Object had an effect on native speakers' production, we ran an analysis of variance, which involved two variables: WO and O-condition. The former variable had five levels: S(cl)VO, (cl)VSO, OclVS, (cl)VOS, and OSV. The clitics that are in parentheses mean that we collapsed the two versions of WOs that appeared with and without clitics (e.g., S(cl)VO =SVO +SclVO). Since no OVS utterances were produced for the description of the difference, cl is not in parenthesis; similarly, since no

OSclV was produced, cl does not appear in this category. O-condition had 3 level (O-different, O-animate, O-inanimate). This yielded a 5 x 3 =15 design.

The ANOVA revealed a significant main effect of WO (F_1 (4, 68) = 41.549, p < .001): significantly more S(cl)VO utterances were produced than (cl)VSO (p = .016), than (cl)VOS (p < .001), and OSV (p < .001). (cl)VSO also differed from OclVS (p = .007), (cl)VOS (p = .004), and OSV (p = .002). The effect of O-condition was not significant, neither was the interaction WO by O-condition.

Our conclusion could then be that the SVO preference is very strong during production and, although we managed to elicit more non-SVO orders using a different technique, it was not possible to turn the difference between SVO and non-SVO orders into an insignificant one, not even for the cases of VSO or OclVS. On the other hand, (cl)VSO differed from the other orders (OclVS, (cl)VOS, OSV), and it is important to notice that the VSO utterances were not used only in 'all focus'/ 'all new' contexts: they were used in utterances where the stressed element was the Subject (O-/animate/ inanimate) as well as in utterances where both arguments were new information (O-different). Neither did the animacy of the Object affected the production of native speakers in this task: in half of utterances that involved an OS sequence, the Object was inanimate, i.e. in 50% of the OS utterances the inanimate Object appeared before the animate Subject (Table 6.4). Although such utterances were rather infrequent in the data overall, the 'identical' use of OS sequence with animate and inanimate Objects could be seen as an indication that the preference for an 'Animate-Inanimate' order does not have a clear effect on the use of such orders.

Finally, the rather rare cases of OS utterances (6.4%) seem to indicate that there is a preference for SO sequence (83.6%) during this production task. However, since 68% of the SO utterances were in SVO order, we could conclude that the strong SVO preference biases the ratio of the difference between the two sequences.

Verbs

The next question that has to be answered is whether Verbs affect the serial order in which constituents are produced. Although verbs were pre-tested, during the pre-tests people were asked to write sentences 'out of context' (or they had to 'create' a context), whereas in this experiment participants produced these verbs in utterances which were used in a specific context each time.

In Table 6.5 we report the numbers of target WO utterances produced with each verb. The first impression from this Table is that there seem to be verbs that are used more frequently in SVO utterances, like the verb *touches*, and verbs that are used in non-SVO utterances, like the verb *pulls*. There also seems to be a balance between SVO and VSO utterances in the case of the verb *greet*, whereas *hold* is used in OclVS utterances more often than all other verbs.

	S(cl)VO	**OclVS**	**(cl)VSO**	**(cl)VOS**	**OSV**	*total*
love	31	0	9	0	1	*41*
touch	37	0	8	0	0	*45*
point/show	33	1	7	2	0	*44*
kick	28	0	9	1	0	*39*
look	28	1	5	0	0	*34*
hold	22	12	9	2	0	*45*
chase	26	2	12	1	0	*41*
scold	30	0	8	0	0	*38*
pull	18	2	14	2	0	*36*
kiss	27	1	11	1	0	*41*
call	28	1	11	0	0	*40*
greet	25	1	16	0	0	*43*
total	*333*	*21*	*119*	*9*	*1*	**486**

Table 6.5: Greek native production: numbers of target utterances produced with the 12 experimental verbs.

In order to verify whether the differences among verbs were significant, we ran an ANOVA with two variables, WO and Verb. The Verb variable had 12 levels (the 12 verbs that were used in the experiment), whereas WO had 5 levels (S(cl)VO, OclVS, V(cl)SO, (cl)VOS and OSV).

In the analysis we found a significant main effect of WO (F_1 (4, 68)=42.255, $p <$ .001): SVO was more frequent than the other five orders (for all comparisons, $p <$ .001). (cl)VSO was also significantly more frequent than OclVS, (cl)VOS and OSV (for all comparisons, $p <$ .001). The main effect of Verb was not significant, unlike the interaction 'WO by Verb', which was significant (F_1 (11, 187)=2.529, $p <$ .001).

The Tukey HSD tests revealed that significantly fewer SVO utterances were produced with the verb ***hold*** than with the verb *touch* ($p <$ .001). Similarly, significantly fewer SVO utterances were produced with the verb ***pull*** than with the verbs *love* ($p =$ .012), *touch* ($p <$ .001), *point* ($p <$ .001), and *scold* ($p =$ .045). Finally, the verb ***greet*** were used more rarely in SVO utterances than the verb *touch* ($p =$ .045).

Moreover, SVO-*hold* was significantly more frequent than VSO-*hold* ($p < .001$). Additionally, the difference between OclVS utterances that were produced with the verb *hold* and (cl)VSO orders of the other verbs was not significant, whereas all other verbs were used significantly rarer in OclVS utterances than in (cl)VSO ones. The difference between OclVS-*hold* and OclVSO-*love/ touch/ kick/ scold* was significant ($p < .001$). Finally, OclVS-*hold* and (cl)VSO-*hold* was not different from SVO-*pull.*

As for the verb ***pull***, we found that it was used as frequently in S(cl)VO utterances, as the verbs *love*, *touch*, *point*, *kick* and *hold* were used in (cl)VSO utterances. S(cl)VO-*pull* differed significantly only from (cl)VSO-*look* ($p = .012$). Additionally, *pull* was used in (cl)VSO utterances as often as it was used in S(cl)VO utterances. (cl)VSO-*pull* did don't differ from SVO-*greet* nor from OclVS-*hold.*

The verb ***greet*** was rarer in S(cl)VO order than the verb *touch* ($p = .045$). Additionally, *greet* was used in V(cl)SO utterances as frequent as the verbs *hold, chase, pull, kiss* and *greet* were used in SVO utterances. Finally, VSO-*greet* did not differ from OclVS-*hold.*

The conclusion from the above results could be that, of the 12 verbs used in the experimental material, there are some verbs that are used as often in SVO as in VSO order. These verbs are the verbs *pull* and *greet*. The verb *pull* is also used less frequently in SVO order than *touch*, which is the verb with the highest number of SVO utterances. *hold* is also used significantly more often in OclVS utterances than other Verbs. The question that arises is why different WO frequencies are found among verbs.

It might be the case that these differences were the result of some other effect, like the Object conditions. We looked at the three verbs, which were found to differ from the other experimental verbs, in the three Object conditions and the WO utterances they were used in.

In Table 6.6 we summarize the numbers and the percentages of the utterances that were used in each condition with the verb ***hold***. We see that the usages of this verb confirm to the hypothesis about Object animacy and topicalization: in cases where the Object was neither the Topic (O-different) nor inanimate (O-inanimate), the use of SVO was higher than OclVS. When the Object was animate and could be the topic (O-animate), OclVS was used more frequently than SVO (OclVS= 18%, SVO= 9%). This could mean that with the verb ***hold*** the Object can become Topic and appear in utterance-initial position more frequently than with other verbs.

hold	**SVO**	**OclVS**	**VSO**	**ClVSO**	**VOS**	*total*
O-dif	20	2	9	2	2	*36*
O-anim	9	**18**	2	0	2	*31*
O-inan	20	7	4	2	0	*33*
total	*49*	*27*	*16*	*4*	*4*	*100*

Table 6.6: Greek native production of target WO utterances: percentages of the different Word Orders that were used with the verb 'holds' in the different Object conditions.

A first assumption could be that this difference is due to the thematic role that this verb assigns to its Object: we can assume that an animate THEME could more readily appear in this position than other thematic roles. In order for this to be true, the other verbs, which assign the same role to their Objects, should behave in a similar way. The Object of the verb *point* is also the THEME, but, with this verb, OclVS was only used once (Table 6.5) and OclVS-*point* was found to be significantly different from (cl)VSO-*show*, whereas OclVS-*hold* does not differ from (cl)VSO-*hold*.

Moreover, the case of the verb ***pull*** seems to be quite different, since OclVS is used only with inanimate Objects. The production of SVO utterances is lower in the case of O-animate, and this is why the use of SVO is like VSO in the same condition (Table 6.7).

pulls	**SVO**	**OclVS**	**VSO**	**clVSO**	**VOS**	*total*
O-dif	22.2	0	8.33	0	0	*31*
O-anim	8.33	0	11.11	0	0	*19*
O-inan	19.44	5.55	13.88	5.55	5.55	*50*
total	*50*	*6*	*33*	*6*	*6*	*100*

Table 6.7: Greek native production of target WO utterances: percentages of the different Word Orders that were used with the verb 'pull' in the different Object conditions.

As for the verb ***greet***, which also assigns the role of THEME to its Object, it was used only once in an OclVS utterance, and this only happened with an inanimate Object (Table 6.8). More surprisingly, the SVO utterances do not differ in the three Object conditions, nor does VSO, despite the fact that it is less infrequent when the Object is animate and could potentially become the Topic. It seems that the verb ***greet*** has a balanced use, with no particular preference between SVO and VSO orders.

greet	**SVO**	**SVSO**	**OclVS**	**VSO**	**clVSO**	*total*
O-dif	18.60	2.33	0	13.95	0	*34.88*
O-anim	23.25	0	0	6.98	2.33	*32.56*
O-inan	16.28	0	2.33	13.95	0	*32.56*
total	*58*	*2*	*2*	*35*	*2*	*100*

Table 6.8: Greek native production of target WO utterances: percentages of the different Word Orders that were used with the verb 'greet' in the different Object conditions.

The three verbs also assign AGENT role to their Subjects, so they do not differ in that respect either. On the other hand, there are still many controversies about thematic roles, and the issues of 'how many thematic roles there are and how they can be defined remain open questions' (Boland & Tanenhaus 1991: 334). For these three verbs, the roles of AGENT and THEME cannot capture the differences that exist in each case: the agent of *greet* and *pull* is more 'active' than the agent of *hold*: in the experimental contexts, the Subject of *hold* is not really initiating 'the action expressed by the predicate' (Haegeman 1994: 49), but it is rather in a state, the 'state of holding', if we could call it, e.g. in the picture where the man/woman is standing with a baby in their arms. As for the Object of *pull* and *hold* they are not the same with the Object of *greet*: in the first case we could share that it share some marginal properties with the EXPERIENCER (e.g., in the picture where the boy is pulling a girl by her hair), whereas the Object of *greet* could be sharing some properties with GOAL, since 'it is the entity towards which the activity expressed by the predicate is directed' (ibid.: 50).

We can, therefore, talk about degrees of thematic roles, and we can assume that it is not only the role, but also its 'strength', that affects WO preferences. Most active AGENTs, e.g. those of the verbs *chase* or *kick*, would appear in initial-sentence position (SVO), less active, as in the case of *greet*, in later positions (VSO), and those that are yet less active and also have a THEME/GOAL Object, as in the case of *hold*, which is found in non-initial possition (OclVS).

Of course this hypothesis cannot be verified by our data; it is a speculation that could explain only some of the differences found here, since there still remains the question why the Subject of *pull*, which is an active AGENT, is as frequent in second position as in first (SVO and VSO did not differ). An plausible explanation could be that *pull* can also be use as unaccusative, as a synonym of *go* (*i mitera travikse tin kori* 'the mother pulled the daughter' vs. *i mitera travikse pros to vouno 'the mother went towards the mountain'*), but even in an ergative-like way in expressions that mean that something has lasted for too long (e.g. *poli travai afti i katastasi 'this situation lasts for a long*

time', pre-test: Kiki), or as a synonym of *want/desire* (*kane o,ti travai i oreksi su 'do whatever pleases you'*, pre-test: Hristina). The VS 'preference' of the verb *pull* in our data could be due to the frequency of this order for the other meanings of the verb (cf. Boland & Tanenhaus (1991: 359), about the 'unexplored issue' of parallel activation of multiple argument structures).

We must also note that, apart from the thematic roles, there are further differences among these verbs that have to do with the argument structures of the verbs and the ways they were used by native speakers of Greek during this experiment. For example, the verbs *greet* and *hold* were always used without a PP, whereas the verb *pull* was also used with a PP, similarly to the verb *touch*; compare, for example, (41) and (42). Moreover, in the case of *touch*, the Object was not always an entity as a whole, but rather a part of an entity, e.g. (42b).

(41) a. tora o astinomikos travai apo to kapelaki tou ton turista
now the-policeman.NOM pulls from the-little-cap.NOM/ACC his the-tourist.ACC
'now the policeman is pulling the tourist from his cap' (gr; MXI)

b. travai to- o proskopos ton astinomo
pulls the.NOM/ACC the-scout.NOM the-policeman.ACC
'the scout is pulling the policeman' (gr; CTS)

(42) a. o skilos akumpai tin kiria sto heri
the-dog.NOM touches the.ACC lady.NOM/ACC on+the hand
'the dog is touching the lady's hand' (gr; KMA)

b. tora o skilos akumpai to heri tis vassilissas
now the-dog.NOM touches the-hand.NOM/ACC the-queen.GEN
'now the dog is touching the queen's hand' (gr; GCO)

c. i vassilissa akumpai to skilo
the.NOM queen.NOM/ACC touches the-dog.ACC
'the queen is touching the dog' (gr; EYE)

Yet another hypothesis could be that these differences among verbs are an effect of the different pictures that were used with these verbs. Perhaps the events that depicted the pictures that matched with verbs *pull* and *greet* were harder to interpret and this is why they elicited more VSO utterances: the verb was used first so that participants had some more time to figure out who is pulling or greeting whom. The problem with this

assumption is that other pictures were also hard to interpret, like those used with the verb *love* or *scold*, but in these cases we did not have more VSO utterances as a result.

We can only assume that the first hypothesis seems more plausible, i.e. that there is some effect of argument structure and combinatory lexical information on WO choices (cf. Bolant & Tanenbaus 1991: 332); besides, it is widely accepted that theta-grids play a crucial role in sentence comprehension, and verb-guidance models have been proposed in order to explain ambiguity resolution (see, e.g., Ferreira & Henderson 1991; cf. section 3.2.1). It is, thus, reasonable to assume that argument structure and lexical knowledge also affect language production.

6.3.1.3. Discussion

Our first finding is that different kinds of tasks might affect the use of the WO patterns: native speakers of Greek produced more VSO utterances for the description of the difference than for the description of the picture. The latter type of task, nevertheless, has not made a difference in the case of SVO order, which is used equally often for both descriptions. The overall effect of Object Animacy was not significant; similarly the fact that in some case both Subject and Object were new information whereas in other cases the Object could become the Topic, did not affect speakers' choices.

Conversely, the interaction 'WO by Verb' was significant, and the verbs *greet, pull* and *hold* were used in SVO utterances less frequent than other verbs, like *touch*, *love*, *show* or *scold*. We assumed that this could be due to the thematic-roles that verbs assign to their arguments, and we speculated that there might be plausible to talk about degrees of thematic roles, which might result in different Subject and Object positions (i.e. the more active an AGENT is, the more prominent its position in the utterance will be, possibly in combination with the 'strength' of the THEME Object). The data presented here do not provide sufficient evidence for this interpretation, neither was the aim of the research to explain why certain verbs are used in a different way by native speakers of Greek. It is, nevertheless, an important finding that requires further research, in order to have some answers to the questions posed here. Since our aim is to investigate possible influences on L2 production, we will now turn to the L2 production data and we will examine, among other things, whether non-native speakers of Greek also exhibit such variation with respect to the WOs they produced with these verbs.

6.3.2. Albanian elementary

6.3.2.1. Picture description

AeG speakers produced 318 SVO utterances during picture description and a small number of non-SVO utterances (n= 18) the majority of which was in VSO order (n= 12). The number of utterances that belong to the 'other' type, i.e. elliptical and subordinate clauses, was similar to the SVO one (n =312). Although the number of VSO is very low, it is very important that speakers at this level use such utterances, since it was our hypothesis that AeG speakers will be sensitive to WO alternations and they will start using non-SVO orders relatively early.

	SVO	**OVS**	**OclVS**	**VSO**	**VOS**	**Other**	**total**
n	318	2	3	12	1	312	*648*
%	49.1	0.3	0.5	1.9	0.2	48.2	*100*

Table 6.9: Albanian elementary production from the picture description task: numbers and percentages of all responses.

Similarly, O(cl)VS has started 'emerging' in the production of the AeG group. It is also important the fact that AeG speakers use the same WOs with native speakers of Greek (cf. Table 6.1), the exception being SOV and SclVO which are not attested in the AeG data.. AeG speakers used more elliptical and subordinate clauses than Greeks (cf. Tables 6.1 vs. 6.9).

6.3.2.2. Description of the difference

More SVO utterances (n= 412) were produced for the description of the difference. A small number of SclVO and clVSO utterances were also used, which could be an indication (despite the small numbers of occurrences) that AeG speakers can produce a variety of WO patterns.

	SVO	**SclVO**	**OVS**	**OclVS**	**VSO**	**clVSO**	**VOS**	other	*total*
n	412	2	5	6	12	2	1	208	*648*
%	63.6	0.3	0.8	0.9	1.9	0.3	0.1	32.1	*100*

Table 6.10: Albanian elementary production from the description of the difference: numbers and percentages of all responses.

The ANOVA that was conducted in order to compare the utterances that were produced during the two descriptions (Response Type x Task = 8 x 2 =16) revealed a significant main effect of Response Type (F_1 (7,119) = 53.895, $p < .001$), a significant main effect of Task (F_1(1,17) = 1180.3, $p < .001$), and a significant interaction between

Response Type and Task (F_1 (7,119) = 5.389, $p < .001$): significantly fewer SVO utterances were produced for the description of the difference than for the description of the picture ($p = .007$). However, neither VSO nor OvlVS were used more times in the description of the difference –the raise in the OclVS number was not significant (cf. Tables 6.9 vs. 6.10). The Tukey HSD test also revealed that fewer elliptical and subordinate clauses ('other' type) were produced in the description of the difference than in the description of the picture ($p < .001$), which means that the latter task has elicited more WO utterances, but these were mainly of the SVO type.

We could thus conclude that AeG speakers used more SVO utterances while describing the difference than for picture description, because the former task elicits more WO utterances. We could further assume that AeG speakers did not use significantly more OclVS or VSO utterances, despite the fact that their L1 is a free WO language too, because at this level of L2 development their knowledge of the morphological system of Greek nouns is not yet complete, nor is it automatized, and for this reason they have a more 'rigid' performance, resorting to SVO a means of differentiating the Subject from the Object (cf. section 6.1).

Accuracy

In order to test whether there is a correlation between WO variation and morphological accuracy, we looked at the NPs of the target WO utterances and examined whether arguments were marked in a target-like way, i.e. Nom for the Subject and Acc for the Object. We found that NPs were erroneously marked only in SVO and VSO utterances. In Table 6.11 we have summarized the number of 'deviant', with respect to case marking, SVO and VSO utterances that were produced by AeG participants.

As we can see in this Table (6.11), there is a lot of variability with respect to the accuracy of case marking. We could group AeG participants according to their accuracy percentage into the following sub-groups:

a) nativelike: 2 participants (ABA, ABR) produced native-like utterances all the time (100% accuracy).
b) highly accurate: 6 participants(ABE, EXO, FCO, JGJ, KAU, VSE) produced nativelike utterances most of the time (accuracy higher than 90%).
c) accurate: 6 participants' accuracy percentage (ADR, BCU, GMO, ICE, KBO, MDH) ranged from 67% to 86%.

d) low accurate: 3 participants seemed to have problems with noun morphology in Greek, since their accuracy percentage was less than 30%.

	***SVO**	***VSO**	*total*	*% of accuracy*
AAL	2	0	*2*	*25*
ABA	0	0	*0*	*100*
ABE	3	0	*3*	*90*
ABR	0	0	*0*	*100*
ADR	5	0	*5*	*80*
AKO	24	0	*24*	*11*
BCU	4	0	*4*	*86*
EXO	2	0	*2*	*93*
FCO	2	1	*3*	*91*
GMO	5	0	*5*	*84*
GOS	4	1	*5*	*29*
ICE	11	0	*11*	*67*
ISH	5	0	*5*	*82*
JGJ	10	0	*10*	*97*
KAU	2	0	*2*	*93*
KBO	1	0	*1*	*86*
MDH	9	0	*9*	*73*
VSE	1	0	*1*	*96*
total	*90*	*2*	*92*	

Table 6.11: Albanian elementary production: numbers of SVO and VSO erroneously case-marked utterances per participant and percentages of accuracy of case markers.

Since only three people belonged to the 'low accurate' group, we can conclude that AeG speakers are very accurate with respect to case marking. This might be considered a surprising finding, given the low level of L2 proficiency they are supposed to be at. On the other hand, we have assumed (section 6.1) that AeG speakers might be more 'sensitive' to this property of the L2, i.e. overt case marking, since their L1 has this property too. It might be the case that they achieve these high levels of accuracy, from so early on, because they are able to transfer the process of choosing the appropriate morphological marker, out of a big number of different markers, to encode the appropriate grammatical relation, and they can thus, successfully, map forms to functions in the case of more or less complex NPs.

With respect to verbal morphology, AeG speakers were also highly accurate: the verb always is marked with the correct agreement, even with novel, for the participants,

verbs, like *touch* or *scold*. Only two participants used twice the dependent form[1] of the verb *call* instead of the present form (*fonaksi* instead of *fonazi*), which makes this use rather exceptional.

On the other hand, the fact that AeG speakers are accurate does not mean that they have achieved this accuracy easily: the fact that they needed twice as much time than native speakers (section 6.2.3) is indicative of the difficulty they had in producing these utterances.

More importantly for our hypothesis, there does not seem to be a correlation between errors and WO choices, i.e. participants with a small number of 'errors' did not produce more non-SVO utterances than participants who had more 'errors'; participants whose accuracy percentage was between 67% and 86%, most of them used a small number of non-SVO utterances too. Given the small number of errors in the AeG data, we can conclude that SVO order was not used as a means of distinguishing Subjects form Objects, since this is done by means of the correct morphological markers.

Other structures

Since Albanian is a free WO language, the question is why AeG speakers only produced a small number of non-SVO orders. A plausible assumption could be that AeG speakers transferred another structure in which one constituent -in our contexts, the Subject- could be in a prominent position. In seeking for an answer to this question, we looked at the 'other' type utterances. In Table 6.12 we see that, 113 utterances (out of the total number of 648, i.e. 17%) that were produced for the description of the difference, involved the 'not very Greek' structure '*it is X who is doing Y*', e.g. (43).

(43) ine to koritsi pu travai ta dhora
is the-girl.NOM/ACC that pulls the- gifts.NOM/ACC
'it is the girl who is pulling the gifts' (AaG; AAL)

it is X who	na-clauses	clV	SV	**VS**	SclV	**ClVS**	VO	clVO	S	V	PP	other Verb	relative clauses	unclear	*total*
113	*6*	*5*	*9*	***11***	*3*	***3***	*22*	*1*	*3*	*1*	*24*	*4*	*2*	*1*	***208***

Table 6.12: Albanian elementary production from the description of the difference: numbers of non-WO utterances ('other' type).

[1] Holton et al 1997: 111.

This type of utterance has not been used by all AeG speakers, as we can see in Table 6.12. The participants who produced such utterances did not seem to have a problem with case marking either, the exception being GOS who had a 57% of errors (Table 6.12). We can, therefore, conclude that this structure is not exclusively used by speakers who do not master morphological markers. We can thus argue that AeG speakers used a different structure as an alternative of VSO or OclVS, which was transferred from their L1 or even from another L2 (e.g., Italian; cf. section 4.4). However, there is still another question that requires an answer: why is this structure, which is rather rare in the L2 input, more frequent than VSO, which is more frequently used by native speakers and which is also possible in the L1?

We could assume that in utterances like *it is X who is doing Y* the prominence of the Subject is achieved via its serial position in the utterance, or outside the utterance, since it gets 'highlighted' as an argument of the copula, whereas in VSO the Subject is not in such a prominent position: it appears after the Verb and it is only 'highlighted' by accent placement. The fact that not all AeG speakers used this structure could be due either to the fact that some participants have noticed that this is not a frequent structure in the L2, or to personal preferences, i.e. individual differences, which seem to be more apparent during production than comprehension.

Objects and Verbs

Given the difference between SVO and all other WOs, we did not expect to find any effect of the Object conditions (O-different, O-animate, O-inanimate). In fact, the status of the Object did not have any effect on WO choices, and, although there are some 'rudiments' of a different behavior for some verbs (e.g. OclVS use of *hold*; see Table 5 in Appendix III), the lack of significant differences and the infrequent use of non-SVO patterns do not allow for any generalizations about the use of these verbs in the 7 different orders that AeG speakers deployed.

6.3.2.3. Discussion

AeG speakers produced more SVO utterances in the description of the difference than for picture description, as this former task elicits more WO utterances. The frequency of non-SVO utterances remained low; some AeG speakers preferred to stress the Subject using another structure, namely utterances of the '*it is X who does Y*' type.

This could be an L1 influence, or even another L2 influence, which is used as an alternative of VSO possibly because the Subject appears in a more prominent position, or because VSO is not as 'standard' in Albanian as it is in Greek (see section 4.2.2). Or it could be the case that moving constituents from their 'default' position and at the same time choosing their agreement features is a complex task, which is facilitated if constituents appear in SVO order. Additional evidence for this hypothesis comes from the fact that VSO and OclVS were attested in the data, although in a very small number, as well as VS utterances (Table 6.12; (cl)VS utterances represent 2% of the total responses): AeG speakers seem to be aware of the options of Greek WO, but for some reason (most plausibly, due to processing difficulties) do not use non-SVO orders frequently during their speech production.

The fact that no lexical effects were found in this group of speakers (as opposed to the native controls) could lead to the conclusion that production of L2 utterances is syntactically-driven, or driven by default processing strategies.

6.3.3. Albanian advanced

6.3.3.1. Picture description

AaG speakers produced nearly exclusively SVO utterances for the description of the picture (n =386); not only was there a bigger variety of non-SVO utterances in AeG production (cf. Tables 6.9 vs. 6.13), but also the orders that AaG speakers used, i.e. OclVS and VSO, were extremely rare (n = 4 and 3 respectively, i.e. only 1% of the total responses). On the other hand, a lot of elliptical and subordinate clauses were used for the description of the picture.

	SVO	**OclVS**	**VSO**	**other**	*total*
n	386	4	3	255	*648*
%	59.6	0.6	0.5	39.4	*100*

Table 6.13: Albanian advanced production from the picture description task: numbers and percentages of all responses.

6.3.3.2. Description of the difference

The number of SVO utterances remained high in the description of the difference too (n =380; Table 6.14) but in this case other orders were produced as well: VSO was the next to follow, with a big difference from SVO (n= 62), and OclVS was used even

less frequently (n =17). There were also two (cl)VOS utterances, which makes the use of this pattern rather exceptional.

	SVO	**SclVO**	**SVSO**	**OclVS**	**VSO**	**clVSO**	**VOS**	**clVOS**	**other**	*total*
n	380	3	1	17	62	1	1	1	182	*648*
%	58.6	0.5	0.2	2.6	9.6	0.2	0.2	0.2	28	*100*

Table 6.14: Albanian advanced production from the description of the difference: numbers and percentages of all responses.

The ANOVA that was ran in order to compare the performance of AaG speakers in the two tasks (Response Type x Task = 8 x 2 =16), revealed a significant main effect of Response Type (F_1 (7,119) = 66.131, $p < .001$), and a significant interaction between Response Type and Task (F_1 (7,119)= 4.419, $p < .001$). The Tukey HSD test indicated that the difference between VSO utterances that were produced for the description of the difference (10%) and those that were produced for the description of the picture (1%) fell short of being significant ($p = .057$). Similarly, the difference between the SVO utterances that were used it the two tasks was not significant. As for OclVS utterances, although their number increased in the second description, this difference failed to reach significance levels.

The Tukey test also indicated that the number of elliptical and subordinate utterances ('other' type) was significantly lower for the description of the difference than for the description of the picture $p = .004$).

Other structures

It is also important that AaG speakers produced less utterances of the '*it is X who does Y*' type (Table 6.15); Albanian speakers have probably realized that this structure is not used by native speakers of Greek.

it is X who does Y	VS	ClVS	OV	PP	passive
67	11	13	1	10	2

Table 6.15: Albanian advanced production from the description of the difference: 'other' type utterances.

In Table 6.15, we also see that (cl)VS utterances were also produced by AaG speakers, although not as frequently as by the native group. OV and utterances with verbs in passive voice were not produced by Greek native speakers, but the numbers in the AaG group are extremely low and no generalizations can be made. There is also a

small number of utterances in which the Object appeared as the complement of a preposition, as in the Greek group. A variety of other subordinate and elliptical clauses were used, which are irrelevant to our hypotheses regarding WO.

Objects and Verbs

The preference for SVO is so strong, that we did not expect to find any significant differences among the WOs that were produced in the three Object conditions nor with any of the verbs. In fact, the interaction between WO and O-condition was not significant in the ANOVA contacted, whereas the main effect of WO was: as one would expect just by looking at these data, SVO is significantly more frequent than all other orders (for all comparisons $p < .001$). We can only conclude that there is a tendency to avoid OclVS in the O-different condition, i.e. when the Object cannot become Topic, but the number of OclVS utterance is rather small and does not allow for any generalizations.

	SVO	**SclVO**	**OclVS**	**VSO**	**clVSO**	**VOS**	**clVOS**	*total*
O-different	142	1	0	21	1	0	0	*165*
O-animate	128	2	9	16	0	0	0	*155*
O-inanimate	110	0	8	25	0	1	1	*145*
total	*380*	*3*	*17*	*62*	*1*	*1*	*1*	*465*

Table 6.16: Albanian advanced production from the description of the difference: numbers of target WO utterances in the three Object conditions.

The interaction 'WO by Verb' was not significant: again, as in the Albanian elementary group, there might be some rudiments of a verb influence on WO preferences (see Table 6 in Appendix III), but the preference for SVO is so much stronger that nothing seems to affect it.

In the case of advanced learners, whose L1 is also a free WO language, this strong preference for SVO and the low frequency of other WO patterns is an unexpected finding that has to be explained. Since AaG speakers do not use other structures, like elementary speakers did, as 'alternatives' of VSO, we have to find another explanation for the frequency of SVO. It could be the case that AaG speakers do not have a nativelike production in terms of argument marking, i.e. that they still make errors, and for this reason they prefer the 'facilitating' SVO order.

Accuracy

By looking at Table 6.17, one can conclude that AaG speakers are very accurate: only in 12 out of 466 utterances were Subject or Object NPs incorrectly marked for case. However, the 97% of accuracy might be the result of a production strategy, which helps speakers minimize their non-target markings on NPs. This strategy could be the same with the one deployed at the elementary level, and since SVO facilitates a more accurate production and is the most frequent pattern in Greek, there seems to be no reason to abandon it.

If this SVO preference is not an effect of L1 influence (since Albanian is a free WO language), it could be a result of a strategy that is used for facilitating accurate production. On the other hand, the fact that all orders are possible in Albanian does not mean that they are equally frequent: it could be the case that SVO is the most frequent order, and it is for this reason that AeG speakers prefer this order during this experiment. Alternatively, it could be the case that in their IL, SVO is the 'standard', or 'correct' order, which should be used in more 'official' contexts (cf. section 4.2.2). Given the 'distance' between the researcher and the participants of the L2 groups, we could assume that AeG speakers are simply using SVO as the more 'appropriate' order for this situation.

		***SVO**	***VSO**	*total*	% of accuracy
1	ABO	1	0	*1*	*97*
2	ADI	1	0	*1*	*95*
3	AME	0	0	*0*	*100*
4	ECE	0	0	*0*	*100*
5	ETR	0	0	*0*	*100*
6	FDR	0	0	*0*	*100*
7	FMU	1	0	*1*	*95*
8	FXH	0	0	*0*	*100*
9	KBO	0	0	*0*	*100*
10	KCA	0	1	*1*	*97*
11	LSO	1	0	*1*	*97*
12	MGJ	0	1	*1*	*97*
13	MMA	3	0	*3*	*89*
14	OKO	0	0	*0*	*100*
15	RGO	1	0	*1*	*95*
16	SKA	1	0	*1*	*97*
17	SRA	0	0	*0*	*100*
18	ZHA	1	0	*1*	*96*
	total	*10*	*2*	*12*	

Table 6.17: Albanian advanced production from the description of the difference: numbers of target WO utterances with incorrectly marked NPs.

6.3.3.3. Discussion

The preference that AaG speakers have for SVO utterances was affected neither by the task nor by the status of the Object nor by verb semantics. Moreover, the different task we used, although it elicited more VSO or OclVS utterances, did not change significantly AaG speakers' WO choices.

Since Albanian is a free WO language, one would expect to find a greater variety of WO patterns in AaG speakers' production. On the other hand, it seems reasonable to assume that, in the L1 too, certain orders might be less frequent than others. To our knowledge, there is no native Albanian corpus of speech production that we could consult in order to find out about the frequencies of the different WO patterns. We can, therefore, speculate that this preference for SVO is an effect of its frequency in the L1. Alternatively, we could assume that AaG speakers think of SVO as more 'appropriate' for this experiment; or, we could even assume that they prefer this order for processing reasons, since SVO, the 'default' order (see section 5.4), is facilitating their accurate, in terms of argument marking, production.

6.3.4. English elementary

6.3.4.1. Picture description

EeG speakers produced 490 SVO utterances, whereas only two VSO and one VOS instances are attested in the data (Table 6.18). There were also 155 elliptical and subordinate clauses that were used with the experimental Verbs for the description of the picture.

	SVO	**VSO**	**VOS**	other	*total*
n	490	2	1	155	*648*
%	75.6	0.3	0.2	23.9	*100*

Table 6.18: English elementary production from the description of the picture: numbers and percentages of all responses.

6.3.4.2. Description of the difference

The strong SVO preference was not affected by the different task, and EaG speakers produced 514 SVO utterances (Table 6.19). More interestingly, nearly no other orders were used, the exception being 6 VSO utterances that appeared in the data.

	SVO	**VSO**	other	*total*
n	514	6	128	*648*
%	79	1	20	100

Table 6.19: English elementary production from the description of the difference: numbers and percentages of all responses.

In the ANOVA conducted (Response Type x Task = 4 x 2 = 8), we found a significant main effect of Response Type (F_1 (3,51) = 118.9, $p < .001$), and a significant interaction between Response Type and Task (F_1 (3,51) = 4.33, $p = .009$). The Tukey test indicated that for this group of speakers, the different task condition did not affect their choice for SVO utterances, nor did it affect the number of non-SVO orders, which remained extremely low. SVO utterances differed from all other types of responses, regardless of the task type; 'other' type of utterances also differed from SVO and VSO responses (for all comparisons, $p <.001$).

The preference for SVO could be interpreted as a result of L1 influence, but there are other assumptions that can be made, as in the Albanian speakers. We will now try to examine which hypothesis seems more plausible in the case of EeG learners.

Other structures

First, we have to report that, unlike AeG speakers, EeG speakers did not use other syntactic means in order to make Subjects more prominent: there was only 1 '*it is X who does Y*' utterance. In the elliptical utterances, which were not very frequent either, there were three instances of VS, an indication of V movement. We also see in Table 6.20 that a lot of utterances were produced in which instead of an Object in Acc form appeared a Prepositional Phrase (PP).

	it is X who	clV	SV	VS	SclV	VO	S	V	prep	otherV	relative clause	*total*
n	1	1	14	3	1	9	1	6	86	2	4	*128*

Table 6.20: English elementary production from the description of the difference: numbers of non-WO utterances (elliptical/ subordinate clauses= 'other' type).

PPs instead of an Object NP were used by the majority of the EeG speakers (n = 11) at least once, usually with the verb scold, which can occur either with an Object NP, meaning 'scold somebody', or with a PP, meaning 'fight with somebody' e.g. (44).

(44) o elefanta maloni **me** ta – **me** to papaki

the.NOM elephant.ACC scolds with the.NOM/AC with the.-little.duck.NOM/ACC

'the elephant is fighting with the little duck' (EeG; AKE)

It is important to notice that utterances with PPs that were ungrammatical in Greek, could be grammatical in the L1, and, thus, the ungrammatical use of a PP could be interpreted as an influence of the L1 argument structure, e.g. (45).

(45) *i ghineka kitazi **ston** papa
the.NOM woman looks at.the priest
'*the woman is looking at the priest*' (EeG; ADR)

There were, nevertheless, cases that the use of a PP, instead of an Object NP, is ungrammatical both in the L2 and in the L1, e.g. (46) –(48).

(46) *to aghori fonazi **ghia to** skilo
the-boy.NOM/ACC calls for the-dog.ACC
intended: '*the boy is calling the dog*' (EaG; JMI)

(47) *to pontiki aghapai **sto** elephantas
the-little-mouse.NOM/ACC loves to-the.ACC elephant.NOM
'*the mouse loves the elephant*' (EeG; MMC)

(48) *i ghiaghia kratai **sto** moro
the.NOM grandmother.NOM/ACC holds to.the-baby.NOM/ACC
'*the grandmother is holding the baby*' (EaG; MOR)

Since most of these PPs involved the preposition *se* + the article in the amalgam form *sto*, we could assume that this form has been misused as an alternative of the article form in Acc case, i.e. it is an unsuccessful attempt of overt case marking. As for cases like (46), the use of preposition for could again be an example of L1 influence of the argument structure, since the verb call can occur in the L1 with this preposition in other contexts with a different meaning (e.g., 'call for help'). We can assume that EeG speakers prefer PPs either because they are transferring the L1 argument structure or as a means of marking Objects, since they know that in the L2 case marking has to be overt. The acquisition of the case markers is a difficult task, and perhaps even more difficult is to put this knowledge into performance.

Accuracy

Nevertheless, and despite the fact that in English NPs are not overtly marked for case, EeG speakers seem to be very accurate in their performance, as we see in Table 6.21, where we summarize the number of errors produced by each speakers along with

their accuracy percentage. Overall, of the 520 WO utterances (cf. Table 6.19), 136 were incorrectly marked for Subjects and/or Objects, i.e. in 75% of the produced utterances case marking was nativelike.

More specifically, however, and as we saw in the AeG group (Table 6.11), in the EeG group there seems to be some variability in terms of accuracy. In this group, though, there is no 100% accurate performance. There different levels of performance could be distinguished in terms of morphological accuracy:

a) highly accurate: 7 participants whose performance was accurate more than 90 % of the time (ADR, BCK, BRI, EFR, FMM, RRA, VKA).
b) accurate: 6 participants whose accuracy percentage ranged from 65% to 80% (AKE, CMO, CWI, DFO, LHO, MMC).
c) intermediate accuracy: 3 participants (DRO, JMI, NPI) who produced nativelike utterances nearly half of the time (45% - 58% accuracy).
d) low accuracy: 2 participants whose performance was 36% and 25% accurate (MOR, CCA).

		***SVO**	***VSO**	*total*	% of accuracy
1	ADR	1	0	*1*	96
2	AKE	8	0	*8*	75
3	BCK	14	1	*15*	96
4	BRI	2	0	*2*	94
5	CCA	25	0	*25*	25
6	CMO	4	0	*4*	87
7	CWI	12	0	*12*	65
8	DFO	3	0	*3*	88
9	DRO	10	1	*11*	45
10	EFR	2	0	*2*	94
11	FMM	1	0	*1*	97
12	JMI	13	0	*13*	58
13	LHO	6	0	*6*	82
14	MMC	3	0	*3*	79
15	MOR	9	0	*9*	36
16	NPI	18	0	*18*	47
17	RRA	1	0	*1*	96
18	VKA	2	0	*2*	93
	Total	***134***	***2***	***136***	

Table 6.21: English elementary production from the description of the difference: number of utterances which involved erroneously marked NPs and percentages of accuracy per participant.

Since all participants produced nearly exclusively SVO utterances, regardless of their accuracy level, the hypothesis that SVO is used as a means for distinguishing Subjects from Objects does not seem to hold. But, as in the AeG group, we can assume that SVO is used as a facilitating order, which helps elementary speakers to reach these high levels of accuracy.

In the case of English learners, morphological accuracy is an unexpected finding, since we have assumed that they are not as 'sensitive' to overt case marking as Albanian speakers, and that they would have more problems mapping forms to functions than AeG speakers.

With respect to verbal morphology, in the EeG data there was only one case that the verb did not have the correct agreement features, repeated here in (49).

(49) *i pontiki aghapao to elefanta
the.NOM mouse.NOM/ACC love.I the-elephant.ACC
'the mouse loves the elephant' (EeG; ADR)

There were two more similar cases, but the speaker's self-correction shows that she was aware of morphological ending that the verb should have:

(50) a. o klefis dhihnis – dhihni, sighnomi, to ghineka
the-thief.NOM show.you –shows.he sorry the-woman.NOM/ACC
'*the thief is pointing at the woman*' (EeG; MOR)

b. o aravikos akumvao --vai sto turistas
the-arab.NOM touch.I --.he on+the-ACC tourist.NOM
'*the Arab is touching the tourist'* (EeG; MOR)

The same participant was also able to use correctly other verb endings apart from 3rd person singular:

(51) i ghineka ke i jatros kitazun ston, dhen ksero, sto x-ray
the. woman.NOM/ACC and the-doctor.NOM look.they at+the, not know.I at+the xray
'*the woman and the doctor are looking at the – I don't know, at the x-ray'* (EeG; MOR)

We can therefore conclude that EeG speakers have acquired the basic L2 morphology which could allow them to move constituents, but they prefer a 'strict' SVO performance, because it is readily transferred from the L1 and given its grammaticality in the L2 they have no reason to alter their preference for an L1 order.

Objects and Verbs

As for the use of WO patterns in the three different Object conditions or with the 12 experimental, they did not influence WO choice, as one might expect just by looking at the EeG data (Table 6.19).

6.2.4.3. Discussion

The preference for SVO utterances during EeG production is not affected by the different task or by Object manipulations. The rather exceptional use of non-SVO orders could indicate that EeG speakers might be able to produce some other WO patterns but for some reasons they stick to SVO. We assumed that this might be an influence of the L1 structure: since SVO can be used in the L2 too, EeG speakers are 'compelled' to use their L1 structure (cf. sections 2.2.1.4 and 3.2). We, nevertheless, argued that this interpretation is not the only one, especially if we take into account the data from the AeG group. Given that both groups of elementary learners achieved high levels of accuracy, and they both used SVO nearly exclusively, it could be equally reasonable to assume that this order facilitates production and for this reason it is preferred by speakers from different L1 backgrounds. We will return to the question of the facilitating role of SVO order in section 6.2.6, where we compare the L2 groups.

6.3.5. English advanced

6.3.5.1. Picture description

EaG speakers used SVO order (n = 367) to describe the first pictures of the experimental pairs. They also produced a big number of elliptical and subordinate clauses (n = 273), whereas only a very small number of non-SVO utterances (n = 5) were produced during this task.

	SVO	**SclVO**	**SVSO**	**VSO**	**VOS**	other	*total*
n	367	2	1	4	1	273	*648*
%	56.6	0.3	0.2	0.6	0.2	42.1	*100*

Table 6.22: English advanced production from the description of the picture: numbers and percentages of all responses.

6.3.5.2. Description of the difference

The preference for SVO utterances was not reduced during the second task; conversely, more SVO utterances were produced by EaG speakers (n = 434, which represents 65% of the target utterances). VSO utterances were more frequent during this task (n = 33), and a small number of OclVS (n = 6), VOS (n =9) and SOV (n= 2) utterances were also used. The number of elliptical and subordinate clauses was smaller this time (n= 161).

	SVO	**SSVO**	**SclVO**	**OclVS**	**VSO**	**VOS**	**SOV**	**other**	*total*
n	434	1	2	6	33	9	2	161	*648*
%	67	0.2	0.3	0.9	5.1	1.4	0.3	24.8	*100*

Table 6.23: English advanced production from the description of the difference: numbers and percentages of all responses.

The ANOVA that was run in order to compare EaG production during the two types of description (Response Type x Task = 7 x 2 = 14), revealed a significant main effect of Response Type (F_1 (6, 102) = 82.82.866, $p < .001$), and a significant interaction between WO and Task (F_1 (6,102) = 13.012, $p < .001$): significantly more SVO utterances were produced for the description of the difference than for the description of the picture. The number of VSO utterances was not significantly different in the two conditions. Conversely, significantly fewer elliptical and subordinate clauses were produced during the second description than during the first one.

We can conclude that more SVO utterances were produced for the description of the difference because this task can elicit more WO utterances. Since other orders were produced too, we can assume that the effect of the L1 is not strong at the advanced level. On the other hand, the fact that SVO is preferred to other orders could be attributed to L1 influence, as in the case of the EeG group. But, as already mentioned, other reasons could have also influenced this SVO preference.

Other structures

As in the case of Albanian speakers, EaG speakers have an 'alternative' structure that they use. In the EaG group, utterances with PP instead of a direct Object were less frequent (n= 32) than in the EeG group (n= 86). Conversely, at this level more utterances of the type it is X who does Y (n =34) were used than at the elementary level.

We could thus assume that EaG speakers use this structure in order to 'highlight' the Subject. The question is why advanced, and not elementary, speakers use this structure, as it happened in the two Albanian groups. We could assume that EaG speakers are aware that different accent placement is required with different WOs in different contexts, but at this level of L2 proficiency they have not yet acquired these differences, and for this reason they use the grammatical –although infrequent– construction with the copula and the relative clause. EeG speakers did not produce this construction, possibly because it is also a complex structure for them, as other non-SVO orders: the Subject appears after the copula, and case assignment in copula constructions has been found to create problems especially for elementary learners (Mangana 1998). Advanced speakers are more accurate than elementary (cf. comprehension experiment) and therefore they do not have difficulties assigning Nom to the arguments of ime 'to be'.

Accuracy

Indeed, as we see in Table 6.24, EaG speakers are highly accurate, the exception being three participants whose accuracy percentage is lower than 90% (CNH, JSH, MOE).

		*SVO	*VSO	*VOS	total	accuracy %
1	AFE	2	0	0	*2*	*90*
2	CMA	1	0	0	*1*	*96*
3	CNH	1	0	3	*4*	*85*
4	DPA	0	0	0	*0*	*100*
5	FNA	1	0	0	*1*	*95*
6	IAT	0	0	0	*0*	*100*
7	JFL	2	0	0	*2*	*92*
8	JSH	3	1	0	*4*	*83*
9	JSL	1	0	0	*1*	*97*
10	JWH	0	0	0	*0*	*100*
11	KFL	1	0	0	*1*	*96*
12	KGO	0	0	0	*0*	*100*
13	KWI	3	0	0	*3*	*90*
14	MOE	7	0	0	*7*	*75*
15	MWI	1	0	0	*1*	*94*
16	SBK	1	0	0	*1*	*96*
17	SDA	1	0	0	*1*	*97*
18	WHA	0	0	0	*0*	*100*
	total	*25*	*1*	*3*	*29*	

Table 6.24: English advanced production from the description of the difference: numbers of target WO utterances with erroneously marked NP(s) and percentages of accuracy.

Moreover, participants with 100% accuracy did not have a uniform performance with respect to WO variety in their production: only KGO produced a balanced number of SVO and non-SVO utterances (n = 8 and 9 respectively); other participants had an SVO preference regardless of their accuracy level.

Objects and Verbs

The status of Object or the use of different verbs did not affect the strong SVO preference, as one might expect, given the low frequencies of non-SVO orders (see Table 7 in Appendix III).

6.3.5.3. Discussion

EaG speakers produced significantly more SVO utterances for the description of the difference than for the description of the picture, and, although VSO and OclVS utterances were also more frequent in the former task, the differences were not significant. We could assume that the L1 effect is still strong, even at this level of L2 proficiency. The difficulty to overcome L1 influence could be due to the fact that SVO is possible in both languages (in fact, it is the most frequent order in the L2); thus, EaG speakers prefer the closest to their L1 WO equivalent (cf. section 2.2.1.4). However, there is also the possibility that EaG speakers prefer SVO because it facilitates accurate production in terms of morphological realizations of grammatical relations.

6.3.6. Comparison of L1 and L2 groups

We have seen that by means of a different task we have managed to elicit more non-SVO utterances only in the case of the native group, whereas for L2 groups the elicitation technique had no effect on WO frequencies: although more VSO utterances were produced by AaG and EaG speakers for the description of the difference, they were not significantly more than the VSO utterances that were produced for the description of the picture.

We also found that the manipulations of the Object did not affect WO preferences at all. On the contrary, the use of different verbs seems to influence native speakers' WO choices, whereas the SVO preference that L2 speakers exhibit seems irreversible.

In order to compare the L1 and the L2 groups we will now focus on the target WO utterances, i.e. those that were produced for the description of the difference. From the analysis of variance we excluded the V-final orders which were extremely rare in the data, and we collapsed the WO with and without clitics, the exception being OclVS: OVS utterances were discarded, instead of being added to the OclVS pattern, since the two orders are quite different (see section 4.2.1). We also discarded SVSO utterances, e.g. (52).

(52) o kirios heretai aftos tin kiria

the-man.NOM greets.he he the.ACC woman.NOM/ACC

'the man is greeting the woman' (gr; GVL)

Thus, the WO factor had 4 levels (S(cl)VO, (cl)VSO, OclVS, (cl)VOS). The within-groups variables were L1 and Level.

The ANOVA revealed a significant main effect of WO (F_1 (3, 255) = 390.314, $p <$ .001), and two significant interactions: a) WO by L1 (F_1 (3, 255) = 4.163, p = .007), and b) WO by Level (F_1 (3, 255) = 3.341, p = .02). The 3-way interaction was not significant (p = .816).

6.3.6.1. WO by L1

The post hoc Tukey HSD test indicated that significantly more SVO utterances were produced by English speakers than by Greek (p = .003), whereas the difference between Greek and Albanian was not significant, neither was the difference between Albanian and English.

Greek speakers also produced significantly more VSO utterances than Albanian (p = .01) and English speakers ($p <$ .001). Finally, significantly more OclVS utterances were produced by Greek than by English speakers (p = .022).

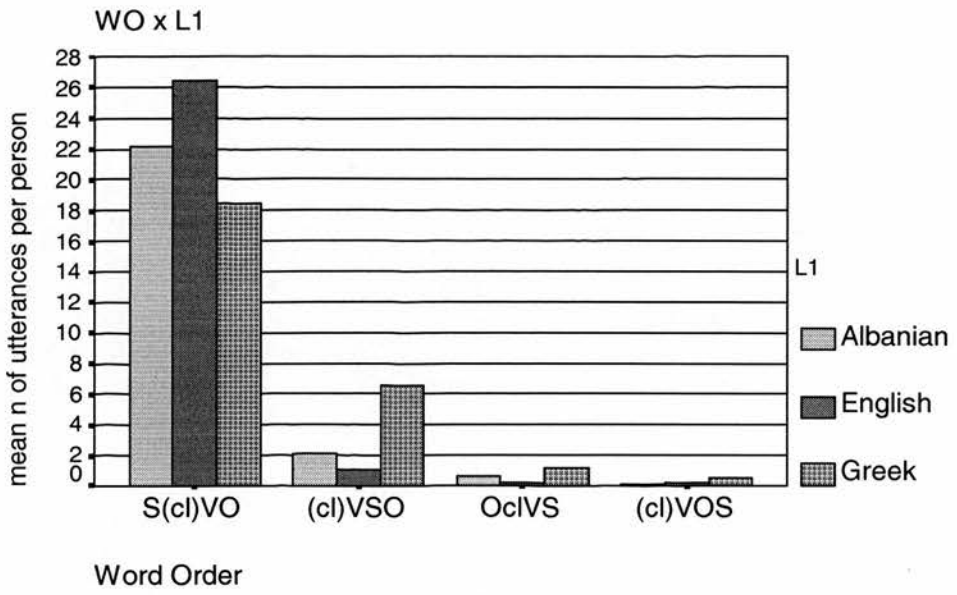


Figure 6.1: Interaction of WO by L1.

6.3.6.2. WO by Level

The post hoc test indicated that elementary speakers produced significantly more S(cl)VO utterances than native speakers (p = .008). The differences between native and advanced, advanced and elementary were not significant.

Moreover, elementary speakers produced significantly less (cl)VSO utterances than advanced (p = .002) and native (p = .001). Advanced learners also produced less (cl)VSO utterances than native speakers (p = .02). Finally, elementary speakers produced significantly less OclVS and (cl)VOS utterances than native speakers (p = .017 and p = .015 respectively).

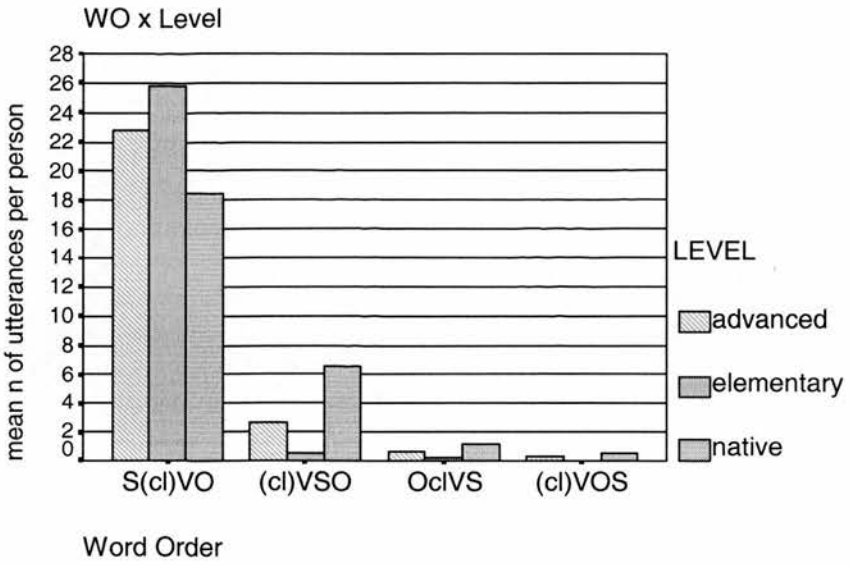


Figure 6.2: Interaction of WO by Level.

6.3.6.3. Accuracy

Level had a significant main effect on L2 speakers morphological accuracy: advanced speakers were more accurate than elementary speakers in terms of case marking but both groups differ significantly from the target (main effect of Level: $F_1(1,85) = 29.831$, $p < .001$; post hoc Tukey HSD tests: $p < .001$, for all comparisons). Moreover, the interaction Level by WO was also significant: both Level groups were less accurate than the controls in SVO and VSO order (regardless of the infrequent errors in the latter order, cf. Figure 6.3), and elementary speakers were less accurate in SVO than in VSO order (Tukey HSD tests: $p \leq .005$, for all comparisons).

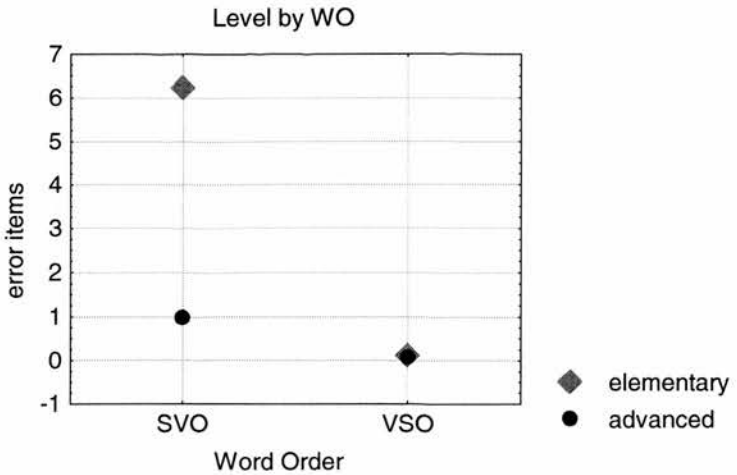


Figure 6.3: Interaction of Level by WO (errors).

6.3.6.4. Discussion

L1 speakers produced significantly more (cl)VSO utterances than L2 speakers, who differ from English and Albanian, as well as from elementary and advanced groups. The avoidance of VSO is related to the strong SVO preference: L2 speakers used SVO utterances in cases that native speakers preferred VSO.

Since Albanian and English speakers do not differ in terms of SVO use, we could assume that the L2 preference for SVO could be due to frequency effects of the L2 input (SVO is more frequent in Greek); it could also be a result of a processing strategy, which dictates, in a way, the use of SVO, in order to facilitate argument marking. Choosing the appropriate endings and, at the same time, moving constituents from their 'default' positions, seems a demanding task, especially for elementary speakers and we can assume that they must deploy some strategy to make the processing burden smaller. Moreover, the fact that elementary production is less accurate than advanced and native speakers' production, as well as the fact that elementary learners needed more time to complete this task than the other Level groups, is an indication of the difficulty that these learners are facing, not only with respect to case marking but also in terms of lexical knowledge in general.

The hypothesis that SVO is used for processing reason seems more plausible than the hypothesis that this preference is the result of influence of the L1 structure, especially if we think that Albanian is a free WO language, like Greek, and transfer from the L1 should result in a greater variety of WO patterns. The fact that Albanian and English speakers' performance during production does not differ either with respect to WO preference or to morphological accuracy, could be an indication that during production the L1 effect is neither as strong nor as 'clear' as we have initially assumed (cf. sections 3.3. and 3.4).

The counterargument could be that perhaps SVO is also the most frequent order in Albanian, and this is why SVO is the most frequent order in AeG data too. The frequency argument is just a speculation, though, since we do not know how frequent the non-SVO orders are, especially VSO. Moreover, the fact that SVO is the most frequent order in the L2 does not mean that L2 learners have not noticed that other orders are possible too (cf. Bley- Vroman (2002) for the effect of frequency on L2 acquisition). In fact, since non-SVO patterns are found in the L2 data, we could assume that L2 speakers know the options they have in the case of L2 WO, but they prefer SVO, possibly because it is easier for production.

On the other hand, the significant interaction between WO and L1 in the case of WO use, makes the argument for L1 influence more reasonable: only English speakers used significantly more S(cl)VO utterances than native controls; English speakers also avoided OclVS and VSO and they differ from native speakers in that respect too. It is also important that, although numbers were extremely low in other groups too, English speakers never produced clVSO or clVOS utterances, and only one person used OclVS. The avoidance of clitics could also be interpreted as a result of L1 influence, since clitics are used in Albanian but not in English.

But we need to explain not only why English speakers differ from the controls but also why they do not differ from Albanian speakers of Greek.

Thus, we could assume that the avoidance of VSO in the L2 groups, and –consequently– the preference for SVO, could be the result of two processing strategies, used by all L2 speakers, according which:

(a) the preferred serial order of constituents is when they appear in their default positions, and

(b) hard to produce orders should be avoided.

The L1 structure and the level of L2 proficiency can make the preference strategy more or less applicable (e.g., only English learners differ from natives with respect to SVO utterances), but they do not seem to affect the avoidance strategy: both groups of English and Albanian speakers as well as elementary and advanced learners, all produced significantly less VSO utterances than native speakers of Greek.

This avoidance of VSO reminds of the 'least effort' strategies, which have been assumed for comprehension and also considered as potential production strategies, according which:

(c) when there are several ways to express the same message, the 'simplest' means of expression will be chosen (Crain & Thornton 1998: 143).

There is however, a further question that has to be answered: Why is VSO hard to produce? Possibly because agreement features, on NPs as well as on Verbs, are more easily 'controlled' when constituents are in the preferred order. Of course, no 'strategy' could help L2 learners to use the right endings; for accurate production knowledge of the morphological L2 system is needed, as well as control over that knowledge too (cf. C/CM, Chapter 3). We have already seen that these L2 speakers have problems with the interpretation of V-initial utterances during comprehension (cf. 'errors' sections in

Chapter 5), which means that they have some difficulties with L2 morphology. Such problems might exist during production too. It does not seem unreasonable to assume that the 'conservative' SVO preference leads to more accurate speech production (cf. the percentages of accuracy). We could claim that L2 speakers use a 'Nominative+ Verb+ Accusative' strategy (cf. 'positional case marking', Mangana 1998), but errors also occur in SVO orders too; more importantly, a Verb+ NOM+ ACC strategy could also have been an option which apparently L2 speakers do not prefer.

Two plausible causes could lie behind the SVO preference that L2 speakers exhibit: first, SVO order could serve an important role, that of distinguishing Subjects from Objects: in VSO, where the two NPs produced 'in a row', if morphological marking is not accurate, the identification of the Subject and the Object NP will be rather impossible, especially if we take into consideration the fact some groups might not have clear preferences about the serial positions of Subjects and Objects in the utterance (cf. chapter 5, Albanian groups). On the contrary, we saw that V-middle ambiguous utterances were given an SVO interpretation by all L2 groups (cf. Chapter 5), and therefore even if case marking is not nativelike, L2 speakers might anticipate that the utterance will be interpreted as SVO. Secondly, and perhaps more importantly, SVO seems to be less 'demanding' than VSO: in the latter order, starting with the Verb presupposes the choice of the Subject NP, in order for the appropriate verb ending to be used; instead of keeping the Subject NP active and produce it after the verb, it should be less demanding to produce it first, and then worry about the Verb with its inflectional endings. In this respect, VSO violates the 'least effort' strategy, stated in (c) above: for the production of SVO and VSO utterances, the Subject NP has to be chosen first, and producing it as soon as it is chosen could involve less effort than keep it 'waiting'.

The SVO preference could also be accounted for with a theory of grammar that supports that the underlying order of natural languages is SVO (Kayne 1994), along with the assumption that L2 speakers prefer to use the underling structure instead of the other WO patters that are possible in the L2. But even if that were the case, there would still be the question why even advanced learners stick to that underling order and differ significantly from the control group with respect to the other WOs. We believe that we can only answer this question by considering processing strategies that L2 speakers deploy during speech production, like those in (a)- (c), as it seems more than reasonable to assume that production data will be affected by performance factors, such as the processing difficulty of VSO and the differentiating role of SVO. This 'processing

complexity approach' has served as an explanatory model in the past (cf. Meisel 1991: 250-51) and in a way it makes the role of the L1 less prominent than certain competence models assume.

6.4. Summary and conclusions

Regarding our research hypotheses we can conclude the following:

Native group: SVO, the most frequent WO in Greek written production, is the most frequent pattern in speakers' speech production too, regardless of task manipulations, i.e. whether speakers were describing a picture or telling the difference between two pictures. However, task manipulations had an effect on the production of (cl)VSO utterances which were more frequent in the latter task than in the former. Since the interaction Verb x WO was significant, we can assume that certain verbs might appear more frequently in certain orders: for example, the verb *hold* was used in OclVS utterances more frequently than verbs like *love, touch* and *kick*. Since OclVS utterances in the O-inanimate condition were frequent with verbs like *hold, pull* and *greet* we can further assume that inanimate entities might appear before animate, depending on the characteristics of the main verb and on the context. We concluded that the lexical information of the verb (argument structure, frequencies) might influence WO preferences during production but further research is required in order to determine the exact nature, the reasons and the strength of this influence.

L2 groups: SVO was the dominant pattern in L2 speakers' production. In the case of elementary speakers, this SVO preference was stronger, as both EeG and AeG speakers produced significantly more SVO utterances than native speakers. Since both groups also appear to be equally accurate in terms of morphological realizations of syntactic functions, we cannot argue that they use this pattern as a means of distinguishing Subjects from Objects. However, the fact that elementary speakers have achieved these high levels of morphological accuracy in the L2 could also be due to the SVO facilitating role: we assumed that this order, apart from being the dominant order in both L1s, also complies to the 'least effort strategy', i.e. when speakers can chose among different WOs, they prefer the one the is less complicated. VSO might be harder to produce, since the Subject NP has to be selected before the appropriate agreement endings are attached to the verb stem, but it will only be produced after the verb, a process that might be more demanding for elementary learners who seem to take one

step at a time. Thus, there does not seem to be an L1 effect on the rate of L2 development, since Albanian and English elementary speakers do not differ in term of non-SVO use, either at the elementary or at the advanced level (the interaction 'L1 by Level' was not significant).

At the advanced level, English speakers use VSO utterances, an order that was hard for them to interpret during the comprehension experiment, a finding that conforms the hypothesis that the 2^{ND} NP strategy is used only for utterance interpretation and not for production. It also confirms to the hypothesis that EaG and AaG speakers' performance will not differ in this task with respect to the use of V-initial orders. There is no evidence, however, that they differ in terms of the SVO use, which means that both EaG and AaG speakers still prefer SVO utterances during production. Given this 'persistence' of SVO, it seems unlikely that this preference is a characteristic of some kind of a basic variety (cf. section 5.4), and seems to add more evidence to the assumption about the facilitating role that SVO has during L2 production. The fact that advanced speakers are less accurate than native speakers is an indication that they might still need some strategy that could counterbalance the lack of (control over the) L2 morphological knowledge and assist them in production.

L1 influence, however, is not out of the picture: English speakers, regardless of their level of L2 proficiency, produced significantly more SVO utterances than Greek controls, whereas Albanian speakers did not differ from the target; moreover, only English speakers differ from Greek controls in terms of OclVS. One could assume that the L1 might also play a determinant role when the L2 WO is not grammatical in the L1; but, despite the fact that OclVS and VSO are equally impossible in English, the former order was used only once by EaG speakers whereas VSO was far more frequent. Moreover, VSO is not impossible in Albanian, but Albanian speakers produced significantly fewer VSO utterances than native, and not significantly more VSO utterances than English speakers of Greek.

It seems therefore more plausible the hypothesis that the L1 has an effect on the applicability of the processing strategies, like the least effort strategy, which is less evident in the Albanian group (Albanian speakers do not differ from Greeks in SVO and OclVS conditions but neither do they differ from English speakers). The L1 might also interact with L2 WO frequencies and English speakers start producing VSO before OclVS (although in the latter case the use of clitics could be a further factor that leads to the avoidance of this structure).

More importantly, the production of all L2 speakers seems to be unaffected by lexical information, which could be the basic difference between non-native and native production, which seems to be lexically-driven. If we add to this the hypothesis that L2 WO might be acquired in an item-by-item fashion (cf. 2.2.1.4), we can conclude that these L2 speakers seem to be far from the target, with a long way to go.

Chapter 7

Acceptability Judgment Experiment

The findings from the previous experiments indicated that the L1 effect is manifested in different ways during different tasks: in comprehension, the effect of the L1 was not evident in the early stages of the L2 acquisition as it was at the more advanced level; we claimed that L2 learners resort to their L1 only when they have difficulties with the L2 input, as in the case of the EeG speakers. Moreover, when the L1 and the L2 structure are alike, learners might be have competing strategies the result being non-nativelike performance in terms of interpretation of certain orders, as in the case of Albanian speakers. In production, there was no clear evidence for the use of a S-first or a 2^{ND} NP strategy, but there was a clear preference for SVO order. The L1 had an effect on the strength of this preference, since only English speakers differed from the native controls in terms of SVO use. Albanian speakers, despite the fact that their L1 is a 'free-WO' language, did not produce a variety of WO patterns and differ significantly from native controls in terms of VSO use; however, OclVS was used equally frequent in both language groups, i.e. native speakers and Albanian speakers of Greek.

The aim of the acceptability judgment experiment is to examine whether the strategies that were used during comprehension and production are also operant during a different task, i.e. sentence acceptability. If the use of (L1) strategies is either a 'last resort' for solving problems in comprehension or a means for facilitating accurate speech production, and if the L1 does not directly influence the L2 grammar, then we expect to find that during this third task, L2 groups will not differ from the native group. We also examine whether case marking and the animacy of the Object affect acceptability judgements, both in native and non-native groups.

With this experiment, thus, we want to achieve a twofold aim: to investigate the nature of judgments by looking at factors that might affect WO preferences, and also to determine whether the L1 structure affects L2 acceptability judgments. Ultimately, by comparing findings from different tasks, to investigate the possible influence that L1 might have during different aspects of L2 performance.

7.1. Research Hypotheses

Our first aim is to examine the effects of constituent order, case marking and animacy on acceptability judgments.

With respect to the first factor, previous research by Keller & Alexopoulou (2001) that used the same technique (i.e. Magnitude Estimation of Linguistic Acceptability) with native speakers of Greek has shown that SVO is the most acceptable order in the null context condition and that V-final patterns were the least acceptable. However, in the experimental material, although Subjects were clearly marked for case, Objects were either feminine (i.e. +marked) or neuter (i.e. -marked). If judgements are affected by case marking, then absence of case marking on the first encountered NP could give grounds for the deployment of such strategies; and whenever the case marking of the second NP contradicts these strategies, one might expect that people will consider such 'complicated' or 'misleading' sentences as less acceptable.

Previous research has also shown that native speakers of Greek prefer to recall sentences in an 'animate–inanimate' order, regardless of the grammatical roles of the two entities (Branigan & Feleki 1999; cf. chapter 6). If conceptual acceptability influences WO, it might as well have an effect on the acceptability of certain orders too.

The research hypotheses that are discussed in the following sections relate more to the Comprehension experiment, since parsing a sentence is a pre-requisite for determining its acceptability (cf. section 3.2.2).

7.1.1. Word Order

There are certain predictions that could be made regarding WO preferences, based on two different kinds of preferences: the first one relates to the ordering of Topic and Focus, the second to the ordering of Subjects and Objects. As we have seen, all six possible orders of main constituents are grammatical in Greek. Nevertheless, there are some preferences that have been observed with respect to their position that relate to their functions as Topics or Focuses: a Topic NP usually appears in peripheral positions whereas the preferred position for a Focus NP is adjacent to the Verb (cf. sections 4.2.1 and 6.1). Moreover, preverbal Topics preferably precede preverbal Focuses. In fact, it has been claimed that this is more than a preference, since sentences in which the

preverbal Focus Phrase appears before the Topic have been considered as ungrammatical (see section 4.2.1). As we have seen, the two important generalizations regarding WO are that: a) a pre-verbal Object which is also the Focus has to be adjacent to the Verb (-O_FV- sequence); b) Focus should follow the Topic (T-F sequence; cf. ibid). We could therefore predict that the only WO in which the preverbal Object/Focus is not adjacent to the Verb, i.e. OSV, will be less acceptable than WOs in which the pre-verbal Object is adjacent to the Verb, i.e. OVS, SOV.

On the other hand, results from the Comprehension experiment indicated that native speakers of Greek have a 'S-first' strategy for the interpretation of ambiguous (V-middle and V-initial) sentences. If the S-first preference in operant during sentence acceptability, SO might be more acceptable than OS sequence. The prediction would then be that SVO, VSO and SOV will be more acceptable than OVS, VOS and OSV. In the Comprehension Experiment, the non-native groups provided no clear evidence for such a S-first preference, either for ambiguous or unambiguous V-initial sentences; for the former type of sentences a S-first tendency was found in some but not all groups: in the EaG group we found a '2^{ND} NP strategy', i.e. the second NP is assigned the Subject role, or, in other words, the preferred position of the Object is immediately after the Verb. We can now examine whether for the EaG group VO sentences are more acceptable than VS and OV. As for the EeG and the two Albanian groups, where no clear evidence was found for the S-first preference, we would like to see whether there is no such effect on judgements (cf. section 3.2).

7.1.2. Argument Marking

If there is a S-first preference, we could assume (like in the comprehension task) that whenever an unmarked NP appears first, it is assigned the role of the Subject; consequently, if the second NP is marked with Nom (i.e. Subject) case, speakers will have to re-analyse the sentence. For comprehension, in all native and non-native groups we found no difference in errors and RTs between VOS-Smark sentences and the other types of sentences. We concluded that there is no evidence in support of an 'overuse' of the S-first preference. In fact, we claimed that for the EaG group such sentences are not at all problematic; on the contrary they are facilitating, since the NP that follows the Verb is taken to be the Object, regardless of its morphological marking. In their case, the problematic utterances were the VSO-Omark sentences, which go against the L1

strategy they deploy. We would like to see now whether sentences like these are lower in acceptability. Then we could assume that people do not like constructions that oppose their strategic preferences. If differences fail to reach the level of significance, then we could assume that the above factors have no effect on speakers' judgements.

7.1.3. Object animacy (OA)

With respect to conceptual accessibility, we want to examine whether OS sequences can become 'better' or 'worse' if we manipulate the characteristics of the Object. In the experimental sentences we kept the animacy of the Subject constant (+ animate) and we manipulated the animacy of the Object (+/- animate). If there is an animacy effect, then sentences with an inanimate Object preceding an animate subject will be less acceptable than sentences where the preceding object is animate (cf. section 6.1.2). We assume this to be true for all groups of speakers.

7.1.4. WO by AM by OA

If both AM and OA play a role, then OS sentences with animate and clearly marked Objects will be better than OS sentences where the Object is inanimate and unmarked for its grammatical function. Moreover, if WO preferences interact with OA and AM, the end-points of the WO acceptability order can be more specifically determined: SVO-S/SO/O/nomark <.... < OSV-SO/Omark & Oanimate < OSV-SO/Omark & Oinamimate < OSV-Smark & Oanimate < OSV-Smark & Oinanimate.

If, on the contrary, neither morphology nor animacy has an effect on speakers' preferences, then we expect to find none of the above mentioned differences in participants' judgements. The only factor that will guide their judgements would be the position of the main constituents in the sentence.

With respect to RTs, we could predict that, overall, elementary learners (Albanian and English) will differ significantly from the native and the advanced groups. The fact that participants have to read sentences may cause delays, if we assume that they need more time to check for the accuracy of the morphological markers, or simply because elementary learners are slower readers.

A plausible hypothesis for the advanced learners could be that they will not differ from the native control, under the assumption that the same mechanisms/ processes are deployed by both groups of speakers (native and advanced).

7.1.5. Summary of the hypotheses

In order to have a better understanding of what influences the process of judging sentences, we will examine whether:

- the position of the Object and the preference for T-F sequence might affect the acceptability of the sentence: SVO, which has a T-F sequence and a canonical Object position, might be the most acceptable order. Conversely, OSV, in which the pre-verbal Object is not adjacent to the Verb, might be less acceptable than the other orders, in which the Object is always adjacent to the verb. Moreover, OVS might be less acceptable than orders that can be interpreted in a T-F fashion, e.g. VOS, SOV.
- there is a 'S-first' strategy; for this to be true we need to find that SO sentences are better (more acceptable, and/or faster RTs) than their OS counterparts. Thus, if such a strategy is affective during the process of judging sentences, OVS will be less acceptable than SOV, conversely to our previous assumption. If the S-first preference interacts with the T-F preference, then OVS and SOV might not differ. The S-first strategy could also result in the lower acceptability of garden path sentences (e.g. VOS-Smark) compared to sentences where the first encountered NP is unambiguously case marked (e.g. VOS-SO/Omark).
- sentences in which the inanimate Object appears before the animate Subject are less acceptable.
- people need more time (longer RTs) in order to judge more complex orders (e.g. garden-path sentences).
- certain sentence types that lie between the two end-points of the acceptability hierarchy relate to longer RTs, the assumption being that people will need more time to place into a hierarchy the 'in-between' constructions.

Regarding L1 influence, we assume that the L1 grammar will not affect L2 judgments and we expect to find no significant differences between native and non-native groups (cf. sections 3.2 and 3.3).

7.2. Method

7.2.1. Task: Magnitude Estimation of Linguistic Acceptability

Since WO is a gradient phenomenon, we have chosen to use the most suitable experimental paradigm that measures gradient acceptability judgments, i.e. Magnitude Estimation of Linguistic Acceptability (MELA; Bard *et al.* 1996).

The advantages of MELA are that it solves 'the measurement scale problems which plague conventional techniques' and it can 'provides data which make fine distinctions robustly enough to yield statistically significant results of linguistic interest' (ibid.: 32). Sorace & Keller (2004) explain the procedure of MELA:

> 'The ME procedure for linguistic acceptability is analogous to the standard procedure used to elicit judgments for physical stimuli. It requires subjects to assign numbers to a series of linguistic stimuli proportional to the acceptability they perceive. First, subjects are exposed to a modulus item, to which they assign an arbitrary number. Then, all other stimuli are rated proportionally to the modulus, i.e., if a sentence is three times as acceptable as the modulus, it gets three times the modulus number, etc.'

Other experimental paradigms that have been use in psycholinguistic research could not be used in this research also because of the nature of the phenomenon under investigation: a binary scale would result in no differences between different WOs at least in the case of native speakers, since all six orders are grammatical in Greek (section 4.2.1); an ordinal scale (with five or seven points) would fail to capture more fine-grained differences that might exist in the acceptability of the six orders. Besides, data elicited by such techniques have been shown to correlate well with magnitude estimation data (Sorace & Keller 2004).

7.2.2. Material

In order to avoid a huge number of sentences in the experimental data, we included only feminine and neuter nouns in the material. Masculine nouns were avoided because of the syncretism between masculine Accusative singular and neuter Nominative/Accusative singular (e.g., to skilo, 'the dog-masc.ACC', and also to moro, 'the baby-neut.Nom/Acc').

Verb+ NPs combinations were pre-tested in order to make sure that there was no preference for one NP to be the Subject or the Object of the sentence, in any of the V+ NP+ NP combinations: 6 native speakers of Greek were asked to tell which of the two Nouns that were given with each verb was more likely to be its Subject. From the first

analysis, it was found that there were some preferences for some nouns to be the Subjects of certain verbs, e.g. in the combination: kitazi –mitera –turistria *'looks – mother- tourist'*, participants clearly preferred the noun '*mother'* to be the Subject of the sentence; see Appendix IV for an example); hence these 'biased' combinations were replaced with others and the procedure of the pre-test was repeated. Finally, 17 Verbs, 22 feminine and 22 neuter nouns were used in the experimental sentences for the interpretation of which no 'bias' was found in the pre-tests; each verb was used once, 2, 3, or 4 times (see Appendix IV for details). 13 Verbs were also used in the other two experimental materials, whereas 4 Verbs were only used in the acceptability judgment, as a result of the pre-test (cf. sections 4.3.1 and 4.3.2).

Fillers: From the 47 fillers used in this experiment, 9 were grammatical and 38 ungrammatical. The ungrammatical fillers were more than the grammatical ones, because all experimental sentences were grammatical and we wanted a lot of ungrammatical distructors in order to make the experiment more 'meaningful' for the participants. The ungrammatical fillers were also used in order to make sure that participants could discriminate between grammatical and ungrammatical sentences.
These fillers were ungrammatical because of the following reasons:

a) CASE (N): the noun was marked with the wrong case marker (either Nom instead of Acc or Gen, or Nom/Acc instead of Gen); number of sentences: 6; e.g.:
   (53)*o pinakas ine ston tihos (*instead of*: ston tiho)
   the-painting.NOM is on+the.ACC wall.NOM
   'the painting is on the wall'
b) CASE (NP): the article and the noun were marked with the wrong case marker; number of sentences: 5; e.g.:
   (54) *ta louloudia ine se o kipos (*instead of*: ston kipo)
   the-flowers.NOM/ACC are in the-garden.NOM
   'the flowers are in the garden'
c) GENDER: the wrong gender was assigned to the noun; number of sentences: 8; e.g.:
   (55) *ta molivia ine sto tsanta (*instead of*: stin tsanda)
   the-pencils.NOM/ACC are in+the.NOM/ACC bag.NOM/ACC
   ' *the pencils are in the bad'*
d) GENDER & CASE: the noun was assigned the wrong gender and the wrong case marker; number of sentences: 5; e.g.:

(56) *ton ikona ine sto vivlio (instead of : i ikona)

the.ACC picture.NOM/ACC is in+the-book.NOM/ACC

'the picture is in the picture'

e) ORDER: the order of constituents in NP was ungrammatical, i.e. possessive pronouns appeared before the noun; number of sentences: 3; e.g.:

(57)**mu hora ine dania* (*instead of*: i hora mu)

my country is Denmark

f) ORDER & CASE: the order of constituents in NP was ungrammatical and the NP was marked with wrong case marker; number of sentences: 2; e.g.:

(58) **meni me o mu filos* (*instead of*: ton filo mu)

lives with the.NOM my friend.NOM

'(s)he lives with my friend'

The rest of the fillers (n: 9) involved other types of errors: words (like prepositions) were omitted, words were omitted and nouns were marked with the wrong case, two articles (definite and indefinite) appeared in the wrong order.

Filler types (a), (b), (d) and (f) were included in the experiment not only for the reasons mentioned above, but also in order to make sure that participants can identify different case markers. We could thus have a proof that L2 speakers, especially elementary learners, not only know the morphological difference between Subjects and Objects, but they can also use their L2 morphological and grammatical knowledge to determine the relevant acceptability of L2 sentences.

7.2.3. Design

There were 8 different types of sentences, depending on the morphological marking on the two arguments and the animacy of the Object (Subjects are always animate):

S: feminine -- O: animate; feminine : SOmark & O-animate

S: neuter ---- O: animate; neuter : nomark & O-animate

S: feminine ---- O: inanimate; feminine : SOmark & O-inanimate

S: neuter ---- O: inanimate; neuter : nomark & O-inanimate

S: feminine ---- O: inanimate; neuter : Smark & O-inanimante

S: neuter ---- O: inanimate; feminine : Omark & O-inanimate

S: feminine ---- O: animate; neuter : Smark & O-animate

S: neuter ---- O: animate; feminine : Omark & O-animate

Each type appeared in all 6 orders, which gives us a total number of 48 sentences (8 types x 6 WO patterns; see Appendix IV for the experimental sentences).

Participants saw lexicalizations in different orders. To give an example, three of the participants of each group saw combination '*listens* + *nurse* + *teacher*' in SVO order, three participants saw it in OVS, three in VSO, three in VOS, three in SOV, and three in OSV order (total number of participant= 18 per group). The same procedure was followed for all experimental sentences (by Latin square).

7.2.4. Procedure

Experiment was run on portable Mac, using Psyscope (see section 6.2.3). Participants read the instructions in their native language, i.e. Greek, Albanian or English (cf. ibid.). They were informed that the experiment they were about to take part to was divided into three sections, which are the following:

Practice Session 1: Participants were asked to judge the relative length of 10 lines that appeared one after the other in the middle of the screen. The first line was their reference-line, i.e. they had to judge all the others in comparison to the first line

Practice session 2: During this session participants had to judge the acceptability of 10 sentences in Greek, in the same way they judged the length of 10 lines during the previous session. They were instructed to focus on the grammatical acceptability of the sentences and not to judge them on the basis of their meaning.

Experimental session: As in the previous sessions, a blue star appeared on the screen for 1000 milliseconds; then the first sentence – or modulus - appeared. At the same time, the timer started running. Participants had to read the sentence and determine its relevant acceptability by assigning it a mark, using the keyboard of the lap-top (see Appendix IV for the actual instructions). They were advised to respond as fast as possible but they were also told that they could not go back and 'correct' their previous responses.

All the sentences of this session (fillers and target sentences) appeared in the middle of the screen. A number, indicating the number of the sentence that participants were seeing at the moment, appeared above each sentence. The total number of sentences of the experimental session was 95: 48 target sentences, 47 fillers. Sentences appeared in random order.

7.3. Analysis

The independent variables of this experiment are:

- Word Order (WO) with six levels: SVO, OVS, VSO, VOS, SOV, OSV
- Argument Marking (AM) with four levels: SOmark, Smark, Omark, nomark
- Animacy of the Object (OA) with two levels: +/- animate

The two dependent variables we analysed were acceptability judgments and reaction times (RTs).

With respect to the first dependent variable, the actual numbers that were given by participants as responses were turned into natural logarithms (LNs). All analyses were made using the means of these logs. In the case of RTs, milliseconds were log-transformed (LNs; see section 6.2.4).

For each group and for both variables, ANOVAs were run to check the effects of WO, Argument Marking (AM), Object Animacy (OA) and their interactions. For significant effects and interactions post hoc Tukey HSD tests were run.

For the by item analysis we used WO as the within groups factor and the other two variables (OA and AM) as between-groups factor –because the same verb appeared in the six orders but did not appear with all possible NP combinations.

We also analysed the ungrammatical fillers (a-f; section 7.2.2), in order to prove that participants can discriminate between grammatical and ungrammatical sentences. We turned responses (=actual judgments) into logarithms and then we ran *t*-tests to examine whether the differences among fillers were significant. Then we run *t*-tests between fillers and experimental sentences in order to make sure that the least preferred orders were not rejected as ungrammatical by L1 or L2 speakers. The experiment deals with acceptability, not with ungrammaticality, but we need to make sure that participants are also judging the experimental sentences in our assumed way (i.e. they also believe that the experimental sentences are grammatical), and that the difference between ungrammaticality and unacceptability can be empirically justified.

7.4. Results and discussion

7.4.1. Greek native

7.4.1.1. Acceptability Judgments

For the Greek native group, WO had a significant main effect on judgments (by subjects F_1 (5, 85) = 12.699, $p < .001$; by items F_1 (5, 200) = 13.251, $p < .001$): SVO sentences were the most acceptable and OSV the least acceptable sentences (Figure 7.1).

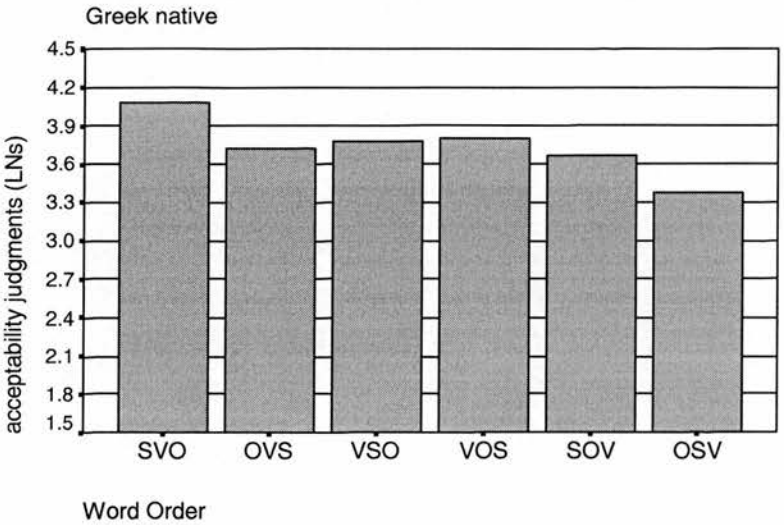


Figure 7.1: Greek native Acceptability Judgments: the effect of WO.

It is worth noting that the same pattern of WO acceptability was found in Keller & Alexopoulou (2001: 327, Fig. 1). In their study, nevertheless, the by-subjects analysis revealed more significant differences than in our data. Our findings suggest that only the extreme points of the acceptability continuum differ from the middle points: SVO and OSV are the two end-points of the acceptability order, whereas the other patterns are 'worse' than SVO and 'better' than OSV.

Post hoc tests revealed that SVO is significantly more acceptable than the other five orders (SVO vs. OVS by subjects and by items $p < .001$; vs. VSO by subjects $p =. 014$ and by items $p = .007$; vs. VOS by subjects $p = .026$ and by items $p = .045$; vs. SOV by subjects and by items $p < .001$; vs. OSV by subjects and by items $p < .001$). OSV is significantly less acceptable than the other orders (OSV vs. OVS (by subjects $p = .004$ and by items $p = .013$; vs. VSO by subjects $p < .001$ and by items $p = .002$; vs. VOS by subjects $p < .001$ and by items $p = .009$; vs. SOV by subjects $p = .021$and by items $p = .039$).

The effect of OA was significant too (by subjects only F_1 (1, 17) = 13.246, p = .002): native speakers of Greek considered sentences with inanimate Objects to be less acceptable than sentences with animate Objects.

The interaction 'WO by OA' was not significant, as opposed to the significant interaction 'AM by OA' (by subjects only, F_1 (3, 51) = 3.808, p = .015).

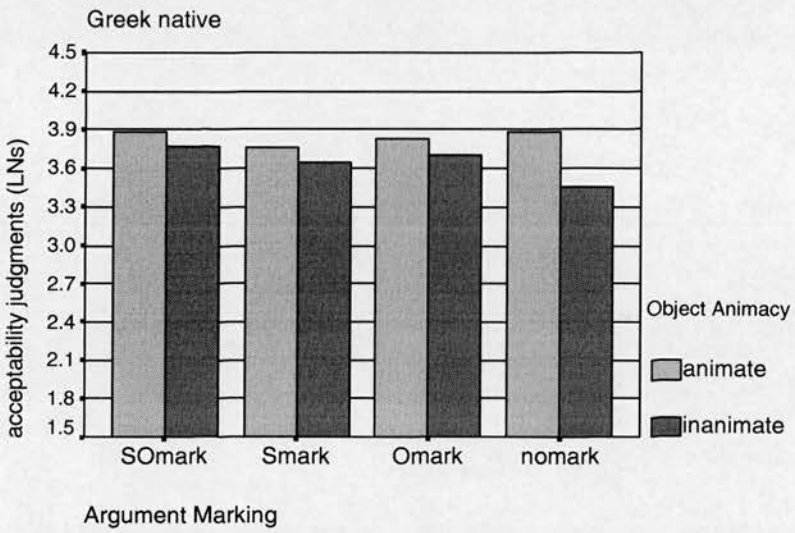


Figure 7.2: Greek native Acceptability Judgments: interaction of AM by OA.

The post-hoc tests revealed that 'nomark & O-inanimate' type is significantly less acceptable than 'SOmark & O-animate' (p = .001), than 'SOmark & O-inanimate' (p = .006), than 'Smark & O-animate' (p = .008), than 'Omark & O-animate' (p = .009), and than 'nomark & O-animate' (p = .001).

The finding that 'nomark & O-inanimate' is less acceptable than the other types of sentences, the exception being 'Smark & O-inanimate', could be an indication that native speakers of Greek dislike sentences in which the inanimate and unmarked entity could be –or is– the Object of the sentence. Given that the verbs used in the experimental sentences could have an inanimate entity as their Subject, the interpretation of such sentence might be problematic and the sentence less acceptable (cf. section 3.2.2).

No other interactions were found to be significant.

7.4.1.2. The status of the least acceptable orders

As we can see in Figure 7.3, sentences that involved wrong gender assignment (GENDER) were the most acceptable whereas sentences in which the order of the NP constituents was disturbed (ORDER) were considered as less acceptable.

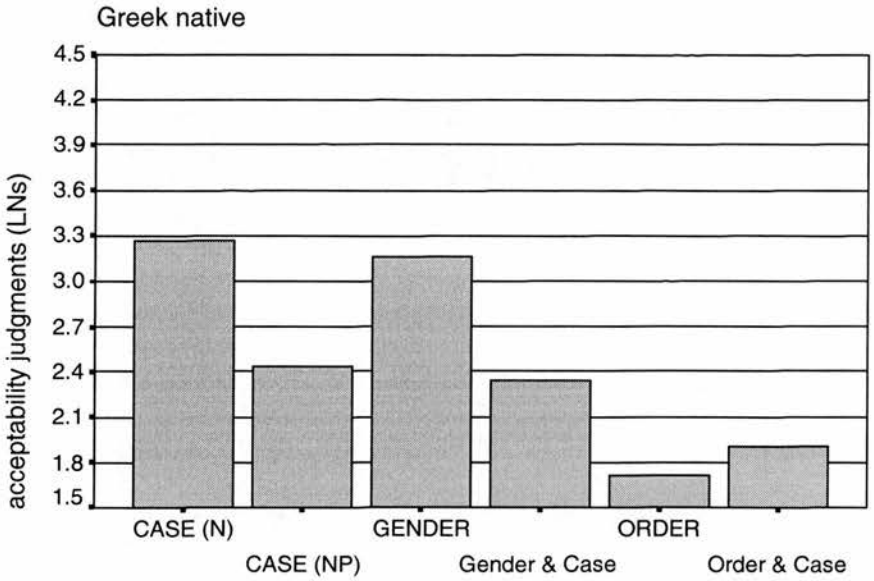


Figure 7.3: Greek native: Acceptability judgments for ungrammatical fillers.

The differences between ORDER and the other fillers were significant, with the exception of 'Order & Case' type ('Order vs. Case (N)' $p < .001$; vs. 'Case (NP)' $p = .003$; vs. GENDER $p < .001$; vs. 'Gender & Case' $p = .01$). 'Case (N)' differed significantly from all the other filler types (for all comparisons $p < .001$). The same is true for the GENDER type (for all comparisons $p < .001$). GENDER and 'Case (N)' do not differ from each other.

First of all, it is of general importance the fact that the ungrammatical sentences are not equally unaccepted: sentences with Gender errors and wrong case marking on the noun (Case N) are significantly less acceptable than sentences with Order violations within the NP. GENDER and 'Case (N)' types could be thought of as lexical errors: this could explain why they do not look as bad as purely syntactic errors. The grammatical gender of a noun is defined in the lexicon, and case errors on a noun could be seen as gender errors too, given the syncretism of the morphological paradigms. Moreover, these errors could be due to various reasons: for example, they could be due to lack of knowledge of the relevant lexical information, or they could even be thought of as 'slips of the tongue'. On the contrary, wrong case assignment on the whole NP, or Order

violations can be considered as syntactic errors that a native speaker would rarely make (cf. Sorace & Keller 2004, and the distinction between soft and hard constraints).

Conversely, sentences that involve Order violations within the NP are perceived as the most unacceptable sentence types by native speakers of Greek. This sentence type (ORDER) is also more directly related to the phenomenon under consideration (WO preferences). The difference is that within the NP there are obligatory rules, which determine the position of NP constituents, whereas constituent order may vary within a sentence.

In order to examine whether the least acceptable WOs were not as unacceptable as the ungrammatical fillers, we compared fillers and experimental sentences. Since none of the interactions that involved WO (i.e., WO x OA, WO x AM, WO x OA x AM) was significant in the native group, we compared directly the judgments for the WO patterns with the ungrammatical fillers. *t*-tests revealed that OSV differs significantly from the following filler types: 'Case (NP)', 'Gender & Case', ORDER, and 'Order & Case' (for all comparisons $p = .001$). OSV does not differ from two ungrammatical filler types, namely GENDER and 'Case (N)'. On the contrary, the other five orders (SVO, OVS, VSO, VOS) differed significantly from all types of fillers, including the GENDER and 'Case (N)' types (for all comparisons, $p = .001$).

One could consider the finding that OSV does not differ from GENDER and 'Case (N)' as an indication that OSV is ungrammatical in Greek (cf. section 4.2.1); however, it needs to be reminded here that native speakers were not judging the *grammaticality* of the fillers/ experimental sentences but their *acceptability*, and it has been argued that a sentence might be more or less acceptable regardless of its grammaticality (see the relevant discussion in section 3.2.2).

We can, therefore, only conclude that the data seem to be consistent with our hypothesis that native speakers of Greek will strongly disprefer OSV due to the strong preference for the Focused Object to be adjacent to the Verb and to come after the (Topicized) Subject.

7.4.1.3. Reaction Times

The second variable is also affected by WO (by subjects F_1 (5, 85) = 7.705, $p < .001$, by items F_1 (5, 200) = 3.432, $p = .005$). Tukey HSD tests indicated that responses for SVO were significantly faster than responses for OVS (by subjects $p < .001$ and by

items p = .003), VOS (by subjects only p = .047), SOV (by subjects only p = .019), and OSV (by subjects only p = .006).

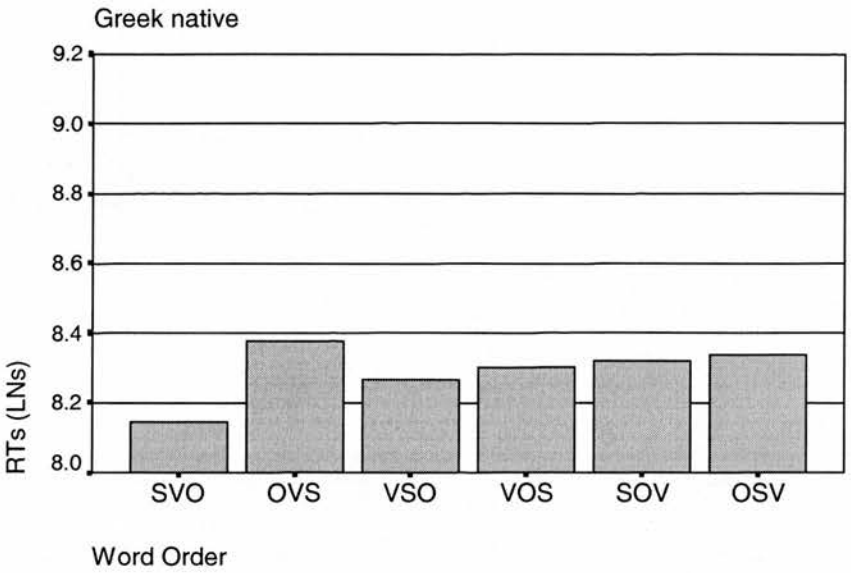


Figure 7.4: Greek native RTs: the effect of WO.

The effect of AM was found to be significant (by subjects F_1 (3, 51) = 5.274, p = .003; by items F_1 (3, 40) = 3.451, p = .025): sentences in which only the Subject was marked for case were more acceptable than sentences in which only the Object was clearly marked (Smark vs. Omark: by subjects p = .001; by items p = .018).

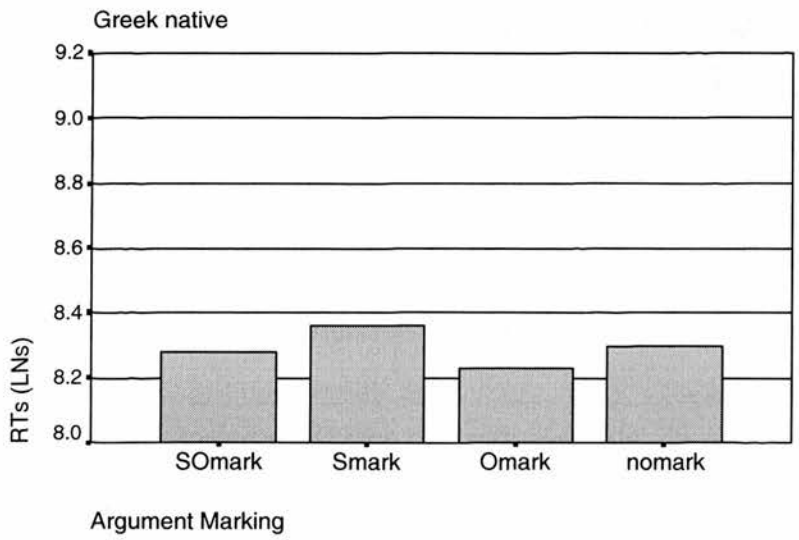


Figure 7.5: Greek native RTs: the effect of AM.

Moreover, the interaction 'AM by OA' was significant (by subjects only, F_1 (3, 51)= 3.349, p = .026). 'Omark & O-inanimate' differs from both Smark types, i.e. 'Smark & O-animate' (p = .049); 'Smark & O-inanimate' (p = .001), as well as from 'nomark & O-inanimate' type (p = .032).

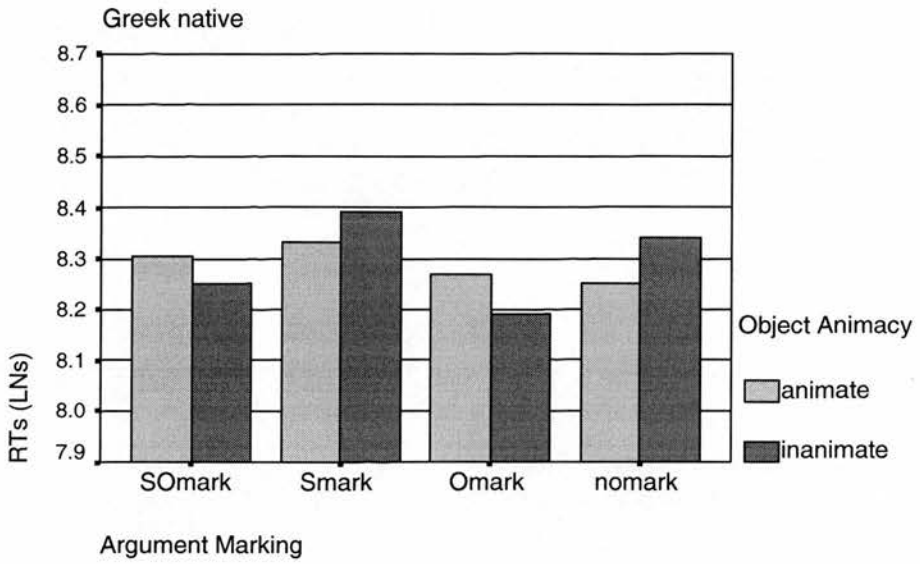


Figure 7.6: Greek native RTs: interaction of AM by OA.

The significant difference between 'Omark & O-inanimate' and Smark sentences could mean that a sentence is easier to be judged when the Object is marked and inanimate, regardless of its position in the sentence. The question is why native speakers of Greek need more time for sentences of the Smark type; we could assume that it might be easier for native speakers to judge sentences in which the identification of the Object is made possible via its case marking rather than indirectly, i.e. via the identification of the Subject that is clearly marked. The next question therefore is why Object identification is more important than Subject identification. We could assume that the position of the Object is more 'restricted' than the position of the Subject, given that the former is preferably adjacent to the Verb (cf. section 4.1.2), and for this reason when the Object is clearly marked the process of judging the acceptability of the sentence might become easier. This, in a way, amounts to say that the position of the Object is a determinant factor for acceptability judgments and this is why fast Object identification facilitates the process of judging.

Alternatively, we could assume that syncretism does play a role during the task of judgment, and since Acc forms are most often syncretised than Nom forms, the

identification of the Object is a more complex process: the neuter definite article is syncretised across cases (same form for Nom and Acc) whereas the feminine definite article is not syncretized for case (the form *i, 'the'*, can be either plural or singular but always Nom; besides, the spelling is different in the two numbers, and this could be facilitating for native speakers of Greek; cf. section 4.1.1). However, in this case too, it is also important to understand why the identification of the Object facilitates the whole process of judging more than that of the Subject, and why 'deductive' Object identification (i.e. 'if the marked NP is the Subject, then the unmarked NP has to be the Object') might be more time-consuming than 'deductive' Subject identification (i.e. 'if the marked NP is the Object, then the unmarked NP has to be the Subject').

Finally, the slow RTs for 'nomark & O-inanimate' could be due to the above reasons (syncretism, and preferences regarding the Object position) as well as to the possibility of the inanimate entity to be the Subject, and this can make the process of judging longer, since it goes against the preference for inanimate NPs to be Objects and not Subjects.

In the Greek group, no other interaction was found to be significant.

7.4.1.4. Discussion

The above results seem to indicate that WO acceptability is not affected by AM and OA manipulations: some sentences can become more or less acceptable, depending on the manipulation of AM and OA (significant AM by OA interaction), but there is no evidence that could allow us to assume that AM and OA play a role in the acceptability of a certain WO or in the rejection of another, since the interactions WO by AM, WO by OA, and WO by AM by OA were not significant. This finding also indicates that the 'garden-path' sentences (i.e., when the 1st NP is not marked for case and the 2nd NP is marked with Nom) were not less acceptable than other types of sentences. With respect to OA, the fact that the three-way interaction (WO by AM by OA) was not significant disconfirms the hypothesis that sentences in which an inanimate entity appears before an animate one would be less acceptable.

SVO is the most acceptable order, and the order that is judged faster than OVS, VOS, SOV, OVS, possibly because of its T-F sequence and the canonical Object position. VSO does not differ from SVO in terms of RTs, but it is not significantly faster than the other orders, so we could argue that it is as 'easy' as SVO and not as 'difficult' as the other order. We notice that VSO, like SVO but unlike the other orders, not only

has an SO sequence, but also a VO one. Perhaps this combination facilitates processing in the case of native speakers of Greek. OSV, the least acceptable order, is not the one with the slowest RTs, since it does not differ significantly from the other non-SVO WOs.

Apart from WO and the facilitating effect of SVO (faster RTs), the AM interacts with OA and sentences in which neither NP is marked for case and on of them is inanimate require more time than sentences in which the Object is not only marked but also inanimate. We argued that this is due to the fact that the inanimate NP in the former type of sentences could also be the Subject of the Verb, and because the identification of the Object cannot be made by means of case marking. We also argued that 'deductive' Object identification results in longer RTs, possibly due to syncretism and the more 'fixed' position of the Object, which is adjacent to the Verb. This 'restriction' could also explain why OSV differs from all non-SVO orders in terms of the first variable, i.e. acceptability judgments.

To summarize, and with respect to our research hypotheses (section 7.1), we can conclude the following:

- SVO and OSV are the most and least acceptable orders, but no other differences were found among the other WOs. This finding seems to confirm the hypothesis that the 'positive- negative' values assigned to SVO - OSV orders is the result of the preference for -O_FV- and T-F sequences that native speakers have. However, the fact that the identification of the Object is another factor that facilitates the process of judging along with the fact that no other significant differences were found among WO patterns, could be an indication that the strong preference is for Objects to be adjacent to Verbs. This seems a safer conclusion, for the additional reason that experimental sentences were presented 'out of context' (or even, in an 'all focus' context).
- no evidence for a S-first preference was found, since SO sentences were not better (higher in the acceptability hierarchy; faster RTs) than their OS counterparts.
- no evidence was found for an effect of case marking either: sentences in which the first encountered NP was unambiguously marked were not 'better' than sentences that could have a garden-path effect.
- conceptual accessibility does not directly affect Greek native judgements: sentences in which the inanimate Object is before the animate Subject are not less

acceptable than other types of sentences. But OA interacts with AM, and whenever the inanimate NP is not marked and there is a possibility that it might be the Object of the sentence (nomark & O-inanimate), sentences not only become less acceptable but also more 'time-consuming' (longer RTs).

- the fact that certain WOs are faster than others have nothing to do with variables such as AM and OA, since the interaction WO*AM*OA is not significant, and there is no evidence that garden path sentences yield longer RTs than sentences in which the 1ST NP is marked for case.

7.4.2. Albanian elementary

7.4.2.1. Acceptability Judgments

WO has a significant main effect on AeG speakers' judgments (by subjects F_1 (5, 85) = 9.676, $p < .001$; by items F_1 (5, 200) = 6.558, $p < .001$): SVO is significantly more acceptable than OVS (by subjects and by items $p < .001$) VSO (by subjects $p = .005$ and by items $p = .002$), VOS (by subjects and by items $p = .001$), SOV (by subjects and by items $p < .001$) and OSV (by subjects and by items $p < .001$).

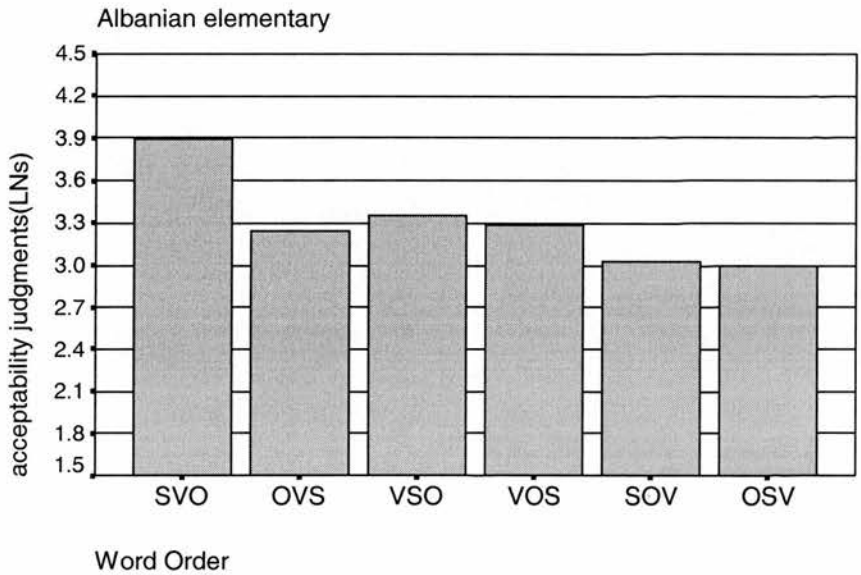


Figure 7.7: Albanian elementary (AeG) Acceptability Judgments: main effect of WO.

AeG learners accepted sentences with animate Objects more than sentences with inanimate Objects (main effect of OA: by subjects F_1 (1, 17) = 12.494, $p = .002$; by items F_1 (1, 40)= 10.683, $p = .002$).

The interaction 'AM by OA' was significant too (by subjects only, F_1 (3, 51) = 4. 89, p = .004): sentences with a marked Subject and an inanimate Object were more acceptable than sentences in which the Object was animate ('Smark & O-inanimate' vs. 'SO/Smark & O-animate', for both comparisons p = .033; vs. 'nomark & O-animate' p = .002). Moreover, 'nomark & O-animate' is significantly more acceptable than 'Omark & O-animate' (p = .04), which is the second lower in acceptability.

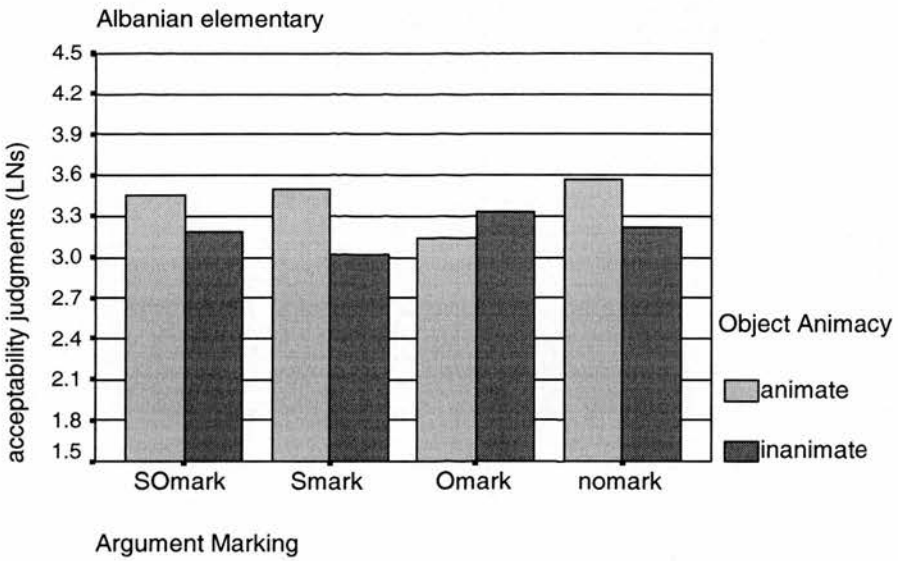


Figure 7.8: Albanian elementary Acceptability Judgments: interaction of AM by OA.

These findings seem to indicate that whenever the Subject is marked, the animacy of the Object affects acceptability: if it is animate, the sentence is more acceptable than when it is inanimate. The lower acceptability of 'Smark & O-inanimate' could be due to the confusion that an inanimate, unmarked entity creates, since this entity could also be the Subject. Given the limited knowledge of the morphological markers that learners have at this level of L2 development, AeG speakers prefer sentences that are less demanding, in terms of the identification of grammatical roles based strictly on morphology. This assumption could also explain the higher acceptability of 'nomark & O-animate' sentence types: in these sentences either of the two NPs could be the Subject, and since both entities are animate, any interpretation is plausible. Learners do not have to check for the accuracy of case markers neither do they have to consider whether the inanimate entity in the sentence is the Subject or the Object, the result being high acceptability estimates for two possible interpretations.

No other significant effects and interactions were found, an indication that the preference and the dispreference for certain WO patterns is not affected by AM and OA manipulations.

7.4.2.2. The status of the least acceptable orders

As we seen in Figure 7.9, the ungrammatical fillers are not judged equally. Erroneous case assignment on the noun (Case (N)) and erroneous gender assignment (GENDER) are more acceptable than the other types. The least acceptable types are those that involve order violations within the NP (ORDER, Order & Case) and erroneous case assignment on the NP (Case (NP)).

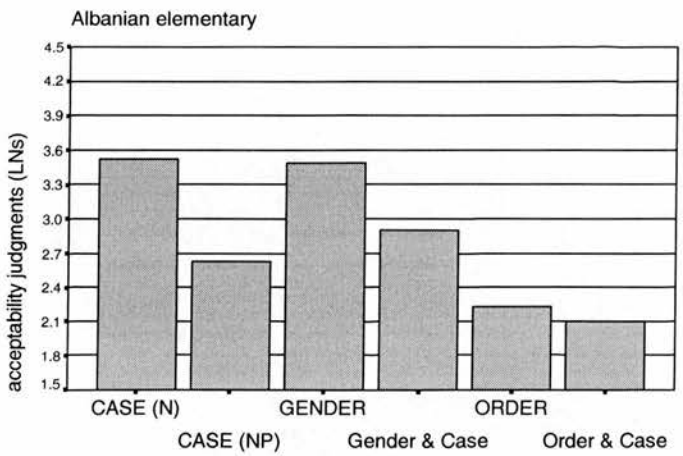


Figure 7.9: Albanian elementary: Acceptability Judgments for ungrammatical fillers.

Indeed, these differences are significant (Table 7.1). It has to be reminded here that the scales are logs, which means that these are large differences.

		t	*p*
Case (N) vs.	Case (NP)	4.694	.000
	Gender & Case	3.471	.003
	Order	3.945	.001
	Order & Case	4.275	.001
Gender vs.	Case (NP)	4.744	.000
	Gender & Case	4.59	.000
	Order	4.536	.000
	Order & Case	4.858	.000

Table 7.1: Albanian elementary: Significant differences among the ungrammatical sentences (t-test; by subjects analysis).

This is an important finding for our research: first, the fact that 'Case (NP)' does not differ from ORDER and 'Order & Case' shows that AeG learners know the basic morphological distinctions between cases; we can therefore claim that they are able to distinguish Subjects from Objects in the experimental sentences[1]. The fact that 'Case (N)' is significantly more acceptable from 'Case (NP)' could mean that case 'errors' on nouns are not considered as serious violations but rather as 'slips of the tongue' (an assumption made for the Greek group too, section 7.4.1.2). It could also mean, however, that elementary learners cannot perceive these errors as such, because of syncretism and their insufficient knowledge of the morphological case marker. On the contrary, wrong case on the definite article is a more serious error, possibly more perceivable, because learners have acquired the morphological paradigm of the article (which also involves less instances of syncretism).

It is also important to know that these learners know about the rigid word order of the NP. What we also need to know is whether they consider Greek as a rigid SVO language and this is why non-SVO sentences were less acceptable than SVO. In order to answer this question, and given the fact that interactions involving WO were not significant in the AeG group, we compared the experimental orders with the ungrammatical fillers. The results from the *t*-tests are summarized in Table 7.2 (for the analysis see also section 7.4.1.2).

We first notice that SVO does not differ from 'Case (N)' and GENDER, i.e. the 'lexical errors'. This could be an indication in favour of the hypothesis about the insufficient knowledge of the morphological markers on nouns and the problems that syncretism (and gender assignment) creates. It is plausible that when these learners check for case, they check mainly the article and not the noun, whose declension is more complicated.

[1] Additional evidence comes from the previous experiments, where we saw that elementary speakers, although less accurate than advanced and native speakers, achieved considerable levels of morphological accuracy.

		t	*sig (2-tailed)*
SVO vs.	Case (NP)	-4.62	.000
	Gender & Case	-4.248	.001
	Order	-7.024	.000
	Order & Case	-6.876	.000
OVS vs.	Order	-6.312	.000
	Order & Case	-4.867	.000
VSO vs.	Case (NP)	-2.82	.012
	Order	-6.414	.000
	Order & Case	-5.645	.000
VOS vs.	Order	-6.885	.000
	Order & Case	-4.271	.000
SOV vs.	Order	-4.471	.000
	Order & Case	-3.282	.004
OSV vs.	Order	-4.423	.000
	Order & Case	-3.879	.001

Table 7.2: Albanian elementary Acceptability Judgments: Significant differences between the ungrammatical fillers and the experimental sentences (t-tests; by subjects analysis).

It is also important that OVS, VSO and VOS are significantly more acceptable than sentences that involve case errors on the NP and order violations of the NP (Case (NP), ORDER, Order & Case), whereas SOV and OSV only differ from the latter two types (Order, Order & Case). This is an indication that the five non-SVO orders are not 'rejected' overall: AeG speakers have a strong preference for SVO but they do not consider Greek as a rigidly SVO language (see also 7.4.1.2).

7.4.2.3. Reaction Times

The effect of WO was significant only in the by items analysis (by items F_1 (5, 200) = 2.533, p = .045[1]), which makes the result less robust than expected.

[1] by subjects F_1 (5, 85) = 2.087, p = .074.

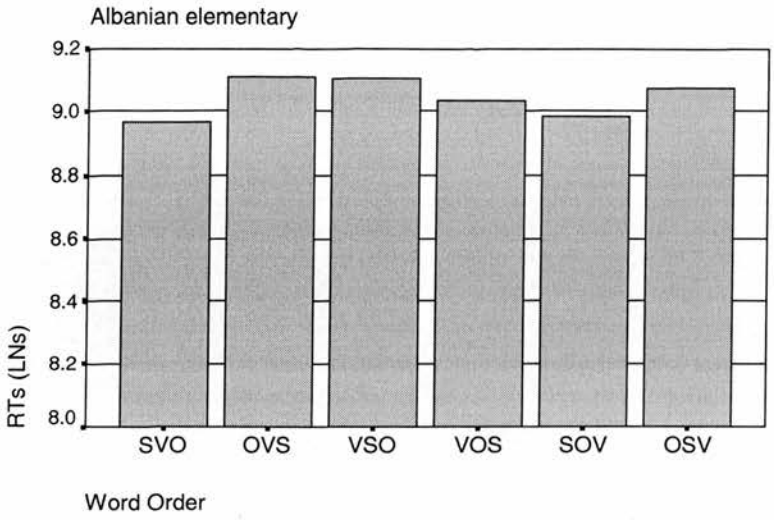


Figure 7.10: Albanian elementary RTs: main effect of WO.

Post-hoc tests showed that the only significant difference is between SVO and VSO (by items only $p = .034$): AeG learners need more time to decide on the acceptability of VSO sentences than they do for SVO.

It seems that AeG learners have difficulties with all six orders, a finding that should not come as a surprise: these learners have realised that Greek is a free-word order language with a preferred SVO order; still, each time they have to identify the Subject and the Object and check for the accuracy of the case markers. This process requires time, regardless of the order of the constituents in a sentence.

This hypothesis seems even more plausible if we also take into consideration the fact that the effect of AM on RTs is not significant, neither is the interaction 'WO by AM'. In fact, no other significant results were found. This could simply mean that under no condition does the task of identification and checking of constituents become any easier for AeG learners.

We could assume that WO, AM or OA do not affect RTs possibly because these learners' knowledge of the morphological paradigms is neither complete nor automatic and they need to check for the accuracy of Subject and Object markers before accepting one sentence as grammatical. The order of the constituents, we could assume, cannot make this process easier or more difficult.

7.4.2.4. Discussion

For the AeG group we found that SVO is the most acceptable order, and that sentences with marked Subjects become less acceptable if the Object is inanimate. The results from the comparison between experimental sentences and ungrammatical fillers enable us to argue that these learners have as strong SVO preference, possibly because Albanian is an SVO language and in this order the Object is in its canonical position.

We also saw RTs for SVO sentences are faster than those for VSO- but since this difference was significant only in the by item analysis, and given that none of the other main effects or interactions were significant either, we assume that the WO effect on RTs is not strong enough for a hypothesis to be made.

In terms of the research questions we could therefore argue that WO, as well as the interaction AM by OA, affect preferences, whereas RTs are not sensitive to any of the independent variables. More specifically:

- AeG learners prefer SVO than the other five orders, possibly because of its status in the L1.
- no evidence for a S-first preference was found: SO sentences are not better than their OS counterparts. AM does not drive intuitions either: 'garden-path' sentences were not less acceptable or more time-consuming.
- animacy is not a determinant factor either: inanimate Objects can appear before animate Subjects. The finding that animacy interacts with morphological marking could be an indication that case marking and conceptual accessibility have a general effect on the process of judging sentences but do not determine WO preferences.
- there is no clear evidence that RTs are affected by the independent variables: AeG speakers need more or less the same amount time for all WOs. We have argued that this is probably due to the insufficient knowledge of the morphological markers that have to be checked before participants decide on the acceptability of a sentence.

In terms of the L1 effect, the SVO preference is so strong that seems rather unexpected for speakers coming from a free-WO language. However, since, to our knowledge, there are no relevant studies for WO acceptability in Albanian, we cannot make any speculations at this point. We will come back to this issue when we compare the L2 groups.

7.4.3. Albanian advanced

7.4.3.1. Acceptability Judgments

In the AaG group, the effect of WO was found to be significant (by subjects F_1 (5, 85) = 9.598, $p < .001$ and by items F_1 (5, 200) = 9.052, $p < .001$). As we see in Figure 7.11, SVO is again the most acceptable order and OSV is the least acceptable one.

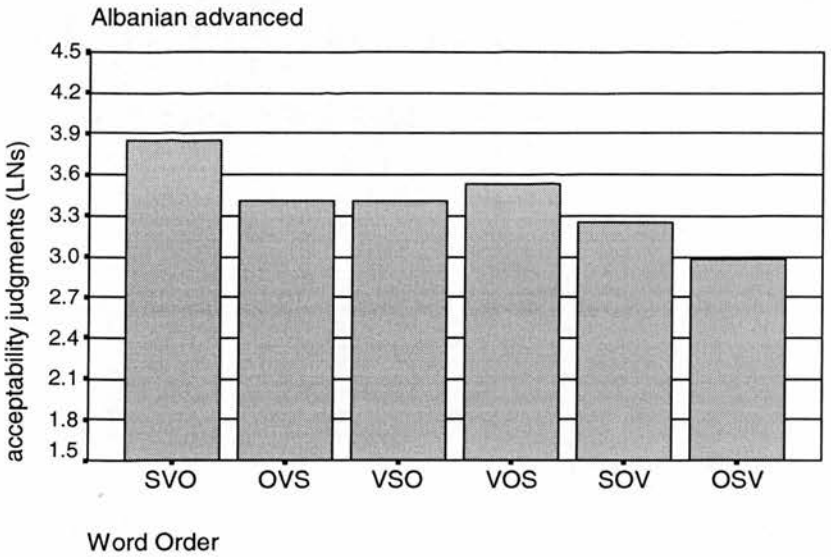


Figure 7.11: Albanian advanced Acceptability Judgments: main effect of WO.

Post-hoc tests revealed that SVO differs from the other orders (SVO vs. OVS by subjects $p = .017$ and by items $p = .03$; vs. VSO by subjects $p = .018$ and by items $p = .036$; vs. VOS by subjects only $p = .018$; vs. SOV by subjects and by items $p < .001$; vs. OSV by subjects and by items $p < .001$). OSV is significantly less acceptable than OVS (by subjects only $p = .019$), VSO (by subjects only $p = .017$) and VOS (by subjects $p < .001$; by items $p = .009$).

Again, one could follow the same argumentation as for the Greek group to explain the status of SVO and OSV in the acceptability hierarchy (O_FV, T-F preferences). But for the AaG group, unlike the Greek native, OSV and SOV do not differ: for this group of learners, SOV lies somewhere between the acceptable SVO and the least acceptable OSV, since it differs from SVO but not from OSV. Moreover, SVO does not differ from VOS, unlike the AaG and the Greek groups.

Thus, we could assume that AaG speakers have a strong preference for SVO and a preference for VO order; it is the latter preference that results not only to the lower acceptability of V-final sentences but also makes the difference between SVO and VOS insignificant.

Moreover, the effect of AM is significant (by subjects F_1 (3, 51) = 4.075, p = .011; by items F_1 (3, 40) = 2.954, p = .044): SOmark sentences are significantly more acceptable than Smark (by subjects p = .005; by items p = .025).

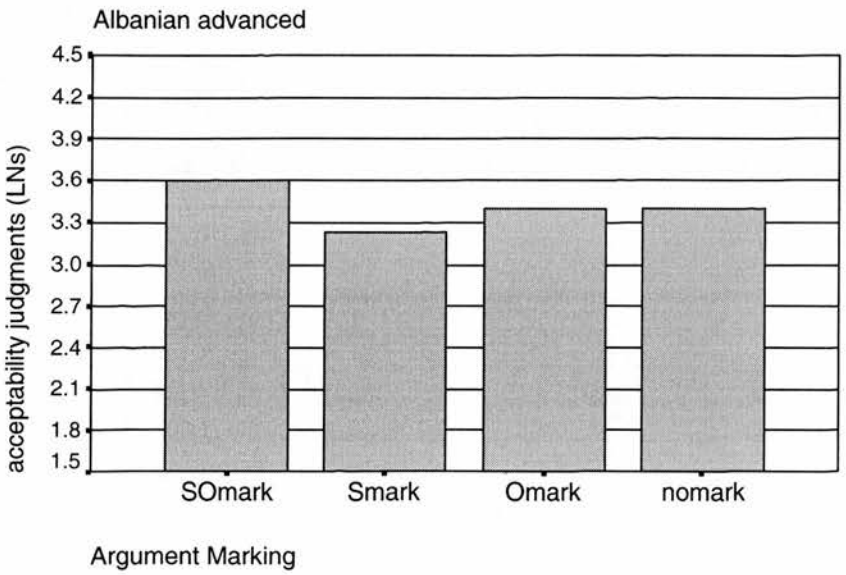


Figure 7.12: Albanian advanced Acceptability Judgments: main effect of AM.

Since SOmark is the most acceptable sentence type, we could claim that syncretism has an effect on judgments: when both arguments are morphologically marked the sentence becomes more acceptable because their grammatical roles are easily recognised via morphology. Perhaps the more instances of syncretism in the Acc (= Object) -rather than in Nom (= Subject)- case make the sentences with unmarked (= neuter) Objects more difficult in terms of case/ gender checking and therefore less acceptable, and this is why Smark sentences are lower in acceptability (cf. section 7.4.1.3).

The effect of Object Animacy was not significant, neither were all the interactions between the independent variables.

We can thus conclude that AaG learners prefer SVO and dislike OSV and SOV. The strong SVO preference could be an L1 effect, like in the elementary group. L1 influence could also be the reason for the VOS preference and the dislike for VSO, which where not found in the elementary group.

7.4.3.2. The status of the least acceptable orders

As we see in Figure 7.13, gender errors as well as case errors on the noun are not considered as serious violations, whereas sentences that involve order violations within the NP (ORDER, Order & Case) are the most unacceptable ones.

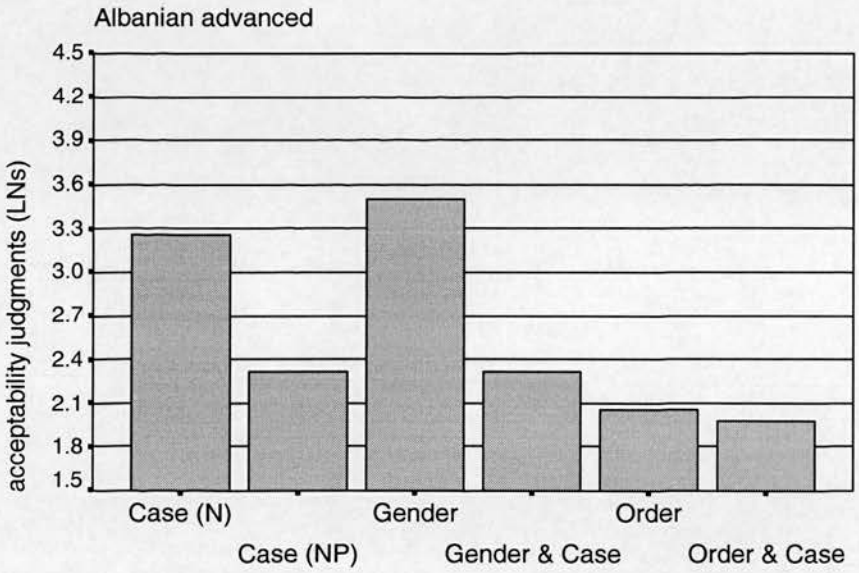


Figure 7.13: Albanian Advanced: Acceptability judgments of ungrammatical fillers.

'Case (N)' is significantly more acceptable than 'Case (NP)' and GENDER types (Table 7.3), an indication that AaG learners know when each case has to be used.

		t	*p*
Case (N) vs.	Case (NP)	8.116	.000
	Gender & Case	3.933	.001
	Order	6.939	.000
	Order & Case	6.661	.000
Gender vs.	Case (NP)	-6.271	.000
	Gender & Case	4.899	.000
	Order	6.673	.000
	Order & Case	7.426	.000

Table 7.13: Albanian advanced Acceptability Judgements: Significant differences among the ungrammatical sentences (t-test; by subjects analysis).

On the other hand, GENDER and 'Case (N)' types differ from all other types of fillers. This could mean either that AaG learners still have problems with gender assignment and the syncretism of the declensional classes, or they do not think that these errors are serious violations, just 'slips of the tongue'.

The former hypothesis seems to be verified by another finding: when we compared the experimental sentences with the ungrammatical fillers, we found that even SVO does not differ from sentences that involve gender errors. GENDER and SVO sentence types are equally accepted (p = .079). GENDER type only differs from OSV (Table 7.4). It is, nevertheless, important to notice that the difference between OSV and GENDER is 'in favour' of the latter: sentences that involve gender errors are significantly more acceptable than OSV sentences. Since OSV differs from SVO and GENDER fillers, but SVO does not differ from GENDER, we could argue that the acceptability of OSV is lower than that of GENDER, due to the difficulty that AaG speakers have to assign the correct gender because of the phenomenon of syncretism.

		t	*p*
OVS vs.	Case (NP)	-5.156	.000
	Gender & Case	-3.784	.001
	Order	-5.291	.000
	Order & Case	-6.307	.000
VSO vs.	Case (NP)	-4.927	.000
	Gender & Case	-3.558	.002
	Order	-4.619	.000
	Order & Case	-5.641	.000
VOS vs.	Case (NP)	-5.513	.000
	Gender & Case	-3.971	.001
	Order	-5.387	.000
	Order & Case	-6.487	.000
SOV vs.	Case (NP)	-4.475	.000
	Gender & Case	-3.459	.003
	Order	-4.15	.001
	Order & Case	-5.008	.000
OSV vs.	Case (NP)	-3.316	.004
	Gender	3.174	.006
	Order	-3.498	.003
	Order & Case	-4.751	.000

Table 7.4: Albanian advanced: Significant differences between the ungrammatical fillers and the experimental sentences (t-test; by subjects analysis).

The fact that all non-SVO sentences are significantly more acceptable than fillers with ORDER (within the NP) and Case violations (of the whole NP) proves that AaG learners do not 'reject' the least acceptable sentences (cf. sections 7.4.1.2 and 7.4.2.2).

7.4.3.3. Reaction Times

None of the independent variables had a significant main effect on RTs; the interactions between the three variables were not significant either. In the case of the elementary group we argued that this is due to insufficient morphological knowledge and lack of automatization of accessing that knowledge; in the advanced group one would find this assumption less plausible, after the exposure that these learners had to the L2.

This finding could be used to support theories that claim that morphological knowledge is never fully acquired in the L2 and that learners never acquire L2 inflections in a native-like way, and this is why checking for morphological accuracy is a difficult task. Before making such an assumption, we need to compare the native and the AaG group in order to make sure that there is a significant difference between the two patterns found in the two groups of speakers. We will come back to this issue in section 7.4.8, where we compare the L1 and the L2 groups.

7.4.3.4. Discussion

SVO sentences are significantly more acceptable than the other orders in the AaG group, with the exception of VOS that does not differ from SVO. We also found that OSV is significantly less acceptable than all other orders, the exception being SOV. These differences might result from two preferences: the strong SVO preference, which was also found in the previous experiments, and the preference for VO sequence, which in the comprehension experiment was competing with the S-first preference while AaG speakers were interpreting V-initial ambiguous sentences. The VO preference results in the reduced acceptability of V-final sentences and the non-difference between SVO and VOS.

Moreover, AaG learners prefer sentences in which both constituents are marked and dislike sentences in which only the Subject is marked, possibly because of the more instances of syncretism in Acc, which makes 'deductive' Object identification a harder tasks (cf. Greek RTs and AeG judgments).

When compared to the ungrammatical fillers, the six orders differed from nearly all filler types, the exception being GENDER type. The important finding for our research is that AaG speakers are capable of giving fine-grained responses, indicating various degrees of acceptability.

In terms of our research questions the conclusions that could be drawn are the following:

WO and AM affect preferences but not RTs. More specifically:

- AaG speakers have a strong SVO preference as well as a VO preference which makes SVO and VOS equally acceptable, and V-final orders least acceptable.

- no evidence in support of the 'S-first preference' was found. Yet, AM had some effect on judgments: AaG learners prefer sentences in which Subjects and Objects are marked than sentences where only the Subject is marked. We claimed that this could be due to the difficulties that syncretism creates during the process of the identification of the grammatical role of the unmarked NP: neuter nouns could be either the Subject or the Object but more confusingly are often identical (both in written and oral forms) to Acc masculine nouns. Albanian speakers need to identify the gender of the noun before they identify its case. And, as we saw in the case of ungrammatical fillers, Greek gender is not 'transparent' for them at all.

- no evidence was found that AaG learners prefer sentences in which animate entities come before inanimate ones.

- the process of judging sentences in Greek does not become faster depending on the independent variables: these learners need the same amount of time to judge the experimental sentences, regardless of the WO, animacy and/or case marking of the constituents. This could be due to the difficulty that these learners have in verifying the accuracy of case markers before deciding upon the acceptability of a sentence.

With respect to the L1 effect, it is possible that the higher acceptability of SVO and VOS could be due to L1 influence. We will return to this question in the comparisons among groups.

7.4.4. Albanian: elementary & advanced

The developmental pattern in the Albanian groups could be summarized as follows:

AeG learners show a strong SVO preference: SVO is significantly more acceptable than the other five orders, a preference that could be interpreted on the basis of our research hypothesis (T-F sequence, and canonical Object position). At the advanced level, the latter preference (VO sequence) seems to grow stronger, since SVO does not differ from VOS. Moreover, at this stage of L2 development, learners distinguish

between the least acceptable order, i.e. OSV, which is significantly less acceptable than SVO, OVS, VOS and VSO. Advanced learners seem to have built a continuum of acceptability: SVO < VOS < VSO < OVS <SOV < OSV, that is not much different from the predicted one, the exception being the higher position of VOS in the hierarchy, which we explained as a result of the preference for V-O sequence. This preference could be a result of L1 influence. It is important to notice that this preference shows up at this stage of L2 development: for elementary learners, like for the Greek controls, SVO is significantly better than VOS.

Apart from WO, the interaction OA by AM was significant at the elementary level but not at the advanced. On the contrary, AM had a main effect at the advanced level but not at the elementary. From this respect, AeG learners seem to be closer to the native group, where we also found that the interaction OA by AM was significant. But the two patterns of significant differences were not alike in the two groups (native- AeG): AeG learners do not like sentences in which the Subject is marked and the Object is inanimate, whereas native speakers do not like sentences in which the arguments of the verb are not marked and the Object is inanimate.

It seems that advanced learners, instead of developing that 'native-like sensitivity', they abandon it, and they move towards more 'syntactically oriented' judgments: even the fact that only AM, and not the interaction of AM by OA, has an effect on judgments, could be seen as an indication for such a turn. AaG learners prefer sentences where both constituents are marked for their syntactic functions. They have realised that the position or the animacy of the Object cannot help them to the identification of its syntactic role and they prefer sentences with clearly marked Objects that are right adjacent to the Verbs. They can transfer this L1 preference since there is no evidence that such a preference is not appropriate in the L2.

With respect to RTs, the fact that no significant main effects and interactions were found in the two groups of learners could mean that Albanian speakers at both levels need time to check the morphological accuracy of the case markers (and possibly of the Verb endings as well) in order to decide whether the sentence is grammatical or not and then to decide on its acceptability. We could assume that advanced learners have not reached the stage at which gender assignment and syncretism create less problems and processing becomes more native-like. But for this hypothesis to be verified we need to compare the L1 and the L2 groups. We come back to this issue in section 7.4.8.

7.4.5. English elementary

7.4.5.1. Acceptability Judgments

The effect of WO was significant (by subjects F_1 (5, 85) = 7.7, $p < .001$ and by items F_1 (5, 200) = 3.438, $p = .005$). As we see in Figure 7.14, SVO is the most acceptable order and OSV the least acceptable.

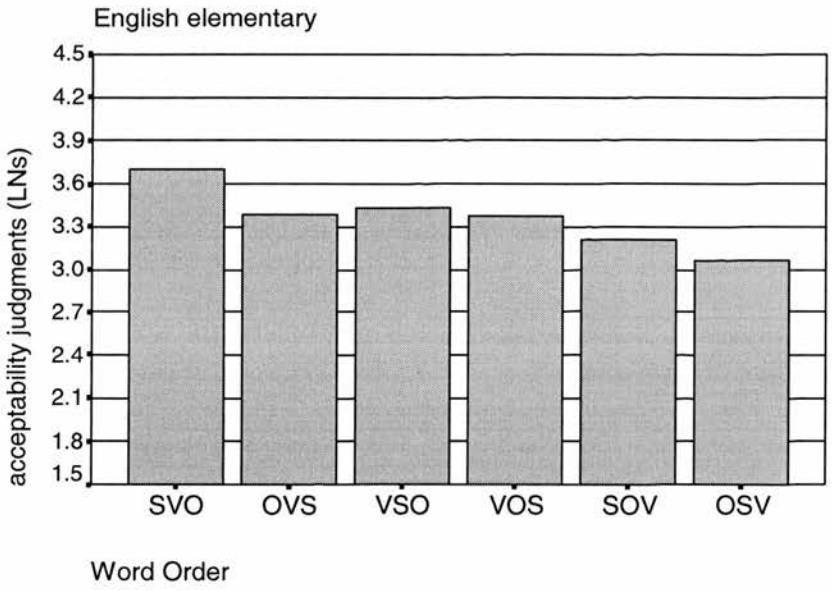


Figure 7.14: English elementary Acceptability Judgments: main effect of WO.

Post-hoc Tukey HSD tests revealed that SVO differs from VOS (by subjects only $p = .049$), SOV (by subjects $p < .001$ and by items $p = .013$) and OSV (by subjects $p < .001$ and by items $p = .018$). OSV is significantly less acceptable than VSO (by subjects $p = .047$ and by items $p = .026$) and VOS (by subjects only $p = .016$).

Since the interaction WO*AM was significant (by subjects only F_1 (15, 255) = 1.895, $p = .024$), we will look at the significant differences between WO subtypes in order to reach some conclusions about the acceptability hierarchy of EeG learners. In Table 7.5 we summarize the significant differences from the post-hoc Tukey test.

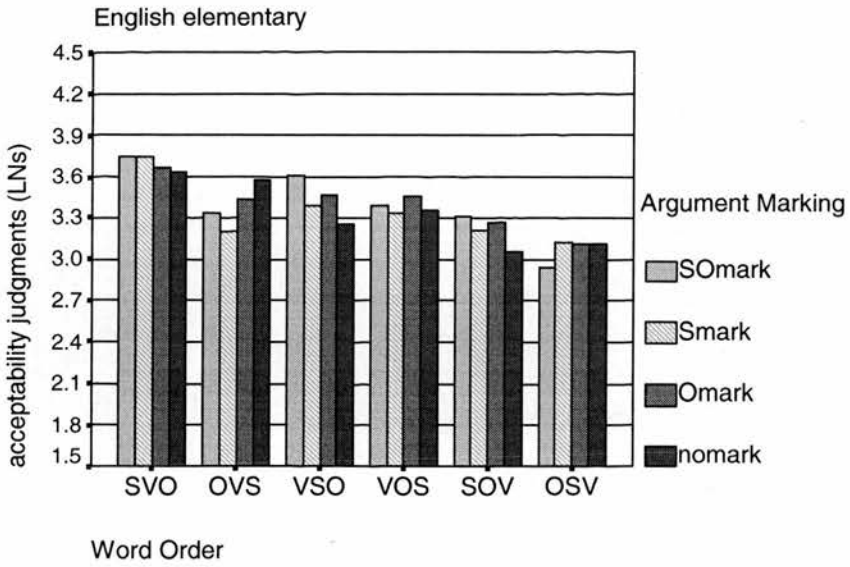


Figure 7.15: English elementary Acceptability Judgments: interaction of WO by AM.

In Table 7.5 we notice that all types of OSV differ from all types of SVO (for all comparisons, $p \leq .002$). We can thus conclude that it is not an effect of AM but rather it is the WO that causes that difference: SVO is the most acceptable pattern and OSV the least preferred; the two orders differ, regardless of morphological marking.

We also notice that VOS never differs from SVO. Our second conclusion could then be that, although VOS is not grammatical in the learners' L1 (i.e., English), it is highly acceptable in the L2. Additional evidence for the lack of a clear L1 effect comes from the finding that VSO, which is also ungrammatical in the L1, is highly acceptable in the L2: only the ambiguous VSO-nomark type is less acceptable than SVO-SOmark (p =.007) and SVO-Smark (p =.005). As for the OVS-nomark type, it only differs from SOV-nomark (p =.002) and all OSV types (for all comparisons, $p \leq .015$). We can, therefore, conclude that V-initial and V-final ambiguous sentences are less acceptable than V-middle ambiguous sentences, possibly as a result of the preference for SO and VO sequences.

The S-first tendency could also explain why OVS-Smark, which is the least acceptable OVS subtype, does not differ from the least acceptable order, i.e. OSV types. On the other hand, we saw that VOS-Smark differs from OSV-SO/-Omark (p = .024 and p = .002 respectively) and it also differs from all types of SVO (for all comparisons, $p <$ .001). On the contrary, VSO-Omark does not differ from SVO types, and it only differs from OSV-SOmark (p = .027). Similarly to sentence interpretation, we could assume that acceptability judgments are also affected from the preference for SO sequence,

depending on the position of the Verb too: in V-middle orders the SO preference is stronger than in V-initial and V-final ones.

SVO-SOmark vs.	OVS-Smark ($p < .001$)
	VSO-nomark ($p = .007$)
	SOV-SOmark ($p = .048$) SOV-Smark ($p = .001$) SOV-Omark ($p = .01$) SOV-nomark ($p < .001$)
	OSV-SO/-S/-O/-nomark ($p < .001$)
SVO-Smark vs.	OVS-Smark ($p < .001$)
	VSO-nomark ($p = .005$)
	SOV-SOmark ($p = .037$) SOV-Smark ($p < .001$) SOV-Omark ($p = .007$) SOV-nomark ($p < .001$)
	OSV-SO/-S/-O/-nomark ($p \leq .001$)
SVO-Omark vs.	OVS-Smark ($p = .014$)
	SOV-Smark ($p = .015$) SOV-nomark ($p < .001$)
	OSV-SO/-S/-O/-nomark ($p \leq .001$)
SVO-nomark vs.	OVS-Smark ($p = .041$)
	SOV-Smark ($p = .044$) SOV-nomark ($p < .001$)
	OSV-SO/-O/-nomark ($p < .001$) OSV-Smark ($p = .002$)
OVS-Omark	OSV-SOmark ($p = .005$)
OVS-nomark	SOV-nomark ($p < .001$)
	OSV- SOmark ($p < .001$) OSV-Smark ($p = .015$) OSV-Omark ($p = .012$) OSV-nomark ($p = .01$)
VSO-Smark	OSV-SOmark ($p = .027$)
VSO-Omark	OSV-SOmark ($p = .001$)
VSO-nomark	SVO-SOmark ($p = .007$) SVO-Smark ($p = .005$)
VOS-SOmark	OSV-SOmark ($p = .024$) OSV-Omark ($p = .002$)

Table 7.5: English Elementary Acceptability Judgments: post hoc tests (Tukey HSD) for the interaction WO by AM.

The interaction WO by OA was also significant (by subjects only F_1 (5, 85) = 3.577, $p = .005$). In Table 7.6 we summarize the results from the post-hoc Tukey test.

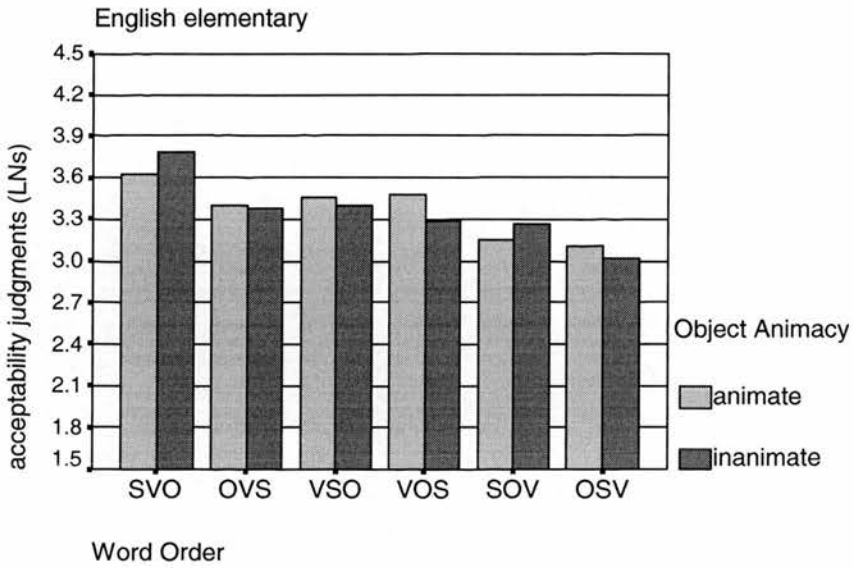


Figure 7.16: English elementary Acceptability Judgments: interaction of WO by OA.

SVO-Oanimate vs.	OVS-Oinanimate ($p = .015$) VOS-Oinanimate ($p < .001$) SOV-O(in)animate ($p < .001$) OSV-O(in)animate ($p < .001$)
SVO-Oinanimate vs.	OVS-O(in)animate ($p < .001$) VSO-O(in)animate ($p < .001$) VOS-O(in)animate ($p < .001$) SOV-O(in)animate ($p < .001$) OSV-O(in)animate ($p < .001$)
OVS-Oanimate vs.	SOV-Oanimate ($p = .016$) OSV-Oanimate ($p = .002$) OSV-Oinanimate ($p < .001$)
OVS-Oinanimate vs.	OSV-Oanimate ($p = .011$) OSV-Oinanimate ($p < .001$)
VSO-Oanimate vs.	SOV-Oinanimate ($p < .001$) OSV-Oanimate ($p < .001$) OSV-Oinanimate ($p < .001$)
VSO-Oinanimate vs.	SOV-Oinanimate ($p = .017$) OSV-Oanimate ($p = .002$) OSV-Oinanimate ($p < .001$)
VOS-Oanimate vs.	SOV-Oinanimate ($p < .001$) OSV-Oanimate ($p < .001$) OSV-Oinanimate ($p < .001$)
VOS-Oinanimate vs.	OSV-Oinanimate ($p = .007$)

Table 7.6: English Elementary Acceptability Judgments: post-hoc tests (Tukey HSD) for the interaction WO by OA.

SVO-Oinanimate is more acceptable than all other orders that involved animate and inanimate Objects (for all comparisons $p < .001$), whereas SVO-Oanimate does not differ from all other WO*OA sentence types. We also found that both OSV subtypes (Object= +/- animate) differ from all other WO*OA types, regardless of the animacy value that Objects had (+/- animate). Our conclusion could then be that the most preferred order, i.e. SVO, can become better after OA manipulations, but the least acceptable order, i.e. OSV, is not affected by animacy at all.

As for the preference for an Animate-Inanimate sequence, it is not very clear from our data that EeG speakers have such preference. The fact that OVS-Oanimate is slightly better than OSV-Oinanimate (only the former differs from SOV-Oanimate, $p = .016$) is the only significant difference that could be interpreted as a result of that preference.

No other significant effects and interactions were found.

Given the above differences in the two significant interactions (WO*AM, WO*OA), we can conclude the following:

SVO is significantly more acceptable than OSV, regardless of AM and OA manipulations. SVO and VSO do not differ whenever Subjects and Objects are marked for case; these two orders do not differ even after the manipulation of the animacy of the Object.

It seems to be the case that, with the exception of OSV and VSO, all orders are more or less 'vulnerable' to AM and OA manipulations: they can become more or less acceptable depending on the values that these independent variables might have. For example, SVO-Oinanimate is the preferred SVO subtype, since it differs from all other WO types; SVO-Omark is less acceptable than the other SVO types and SOV becomes better when the Object is marked (and this is why SOV-SO/-Omark does not differ from SVO-Omark); OVS-Omark is also better than other OVS subtypes since it does not differ from SVO.

These differences might be due to the S-first tendency and the preference for animate entities to precede inanimate ones. Thus, the fact that SVO-Oanimate differs from OVS-Oinanimate but not from OVS-Oanimate could be seen as an indication for preference for an Animate-Inanimate sequence; but if that were a strong preference, then we wouldn't have found that OVS-O(in)animate differs from OSV-O(in)animate. OSV and OSV differ because the EeG speakers highly disprefer OSV, regardless of its case marking.

Moreover, the fact that OVS-Smark differs from all subtypes of SVO, whereas OVS-Omark does not, could be taken as an indication for the S-first tendency that EeG speakers have: whenever the first NP is not marked for case, it is considered as the Subject and when the marking on the second NP proves the opposite, the sentence becomes less acceptable. But this holds true only for V-middle orders. VOS-Smark is not worse than VSO-Omark. This verifies our hypothesis that EeG speakers have a S-first preference for V-middle but not for V-initial or V-final orders. Thus, we could argue, this is not a S-first preference but rather an SVO one.

7.4.5.2. The status of the least acceptable orders

In the case of the EeG learners, WO preferences are influenced by AM. Still, it would be interesting to see whether these learners reject sentences with case violations.

As we notice in Figure 7.17, the least acceptable types are those that involve order violations within the NP, while the most acceptable are those that involve gender errors and erroneous case marking on the noun.

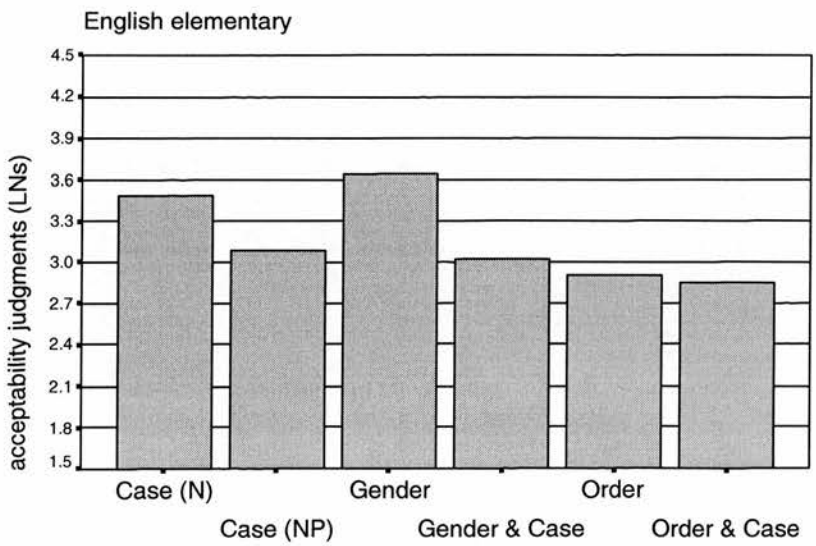


Figure 7.17: English elementary: Acceptability judgments for ungrammatical fillers.

ORDER and 'Order & Case' types are significantly less acceptable than GENDER and 'Case (N)' types, but also that 'Case (N)' also differs from GENDER, which is significantly more acceptable than all the other types (Table 7.7).

		t	*p*
Case (N) vs.	Case (NP)	2.119	.049
	Gender	-2.17	.044
	Order	2.472	.024
	Order & Case	3.575	.002
Gender vs.	Case (NP)	-2.491	.023
	Gender & Case	2.437	.026
	Order	2.926	.009
	Order & Case	4.464	.000

Table 7.7: English elementary (EeG): Significant differences between the ungrammatical fillers (t-test; by subjects analysis).

The fact that EeG learners can identify case violations is obvious from the fact that 'Case (N)' and 'Case (NP)' both differ from GENDER. The fact that they also differ from each other, along with the finding that 'Case (N)' is significantly more acceptable than ORDER and 'Order & Case', whereas 'Case (NP)' is not, could be seen as proof of the difficulty that these learners have to identify case errors on Nouns only: the declensional paradigm of the article is easier to be acquired and, as a result, case errors on articles are more obvious (cf. Albanian groups).

Moreover, when we compared the experimental sentences[1] with the ungrammatical fillers (Table 7.8), we found that nearly all WOs differ from 'Order & Case', the exceptions being the two V-final orders.

		t	*p*
SVO vs.	Order & Case	-3.757	.002
OVS vs.	Order & Case	-3.355	.004
VSO vs.	Order & Case	-3.259	.005
VOS vs.	Order & Case	-3.383	.004
SOV vs.	Gender	4.943	.000
OSV vs.	Case (N)	4.269	.001
	Gender	4.435	.000

Table 7.8: English elementary (EeG): Significant differences between the ungrammatical fillers and the experimental sentences (t-test; by subjects analysis).

OSV is less acceptable than 'Case (N)' and GENDER types. It is also important to notice than none of the WO patterns differ from ORDER. It is more than reasonable to assume that this is an L1 effect, i.e. the acceptability of ORDER: despite the fact that EeG speakers realise the structure of the L2 NP (reduced acceptability of ORDER), they accept these ungrammatical sentences, in which the possessive pronoun appears before

[1] although the interactions WO*AM and WO*OA were significant, here we do not compare the least acceptable types that post-hoc tests for these interactions revealed, in order to be able to compare the results from this group with the results from the other groups of speakers.

the noun, more than Greek speakers do (cf. section 7.4.1.2). Regarding OSV, this non-difference is an indication that EaG speakers strongly disprefer this order, despite the fact that this a possible order in English too (cf. section 4.2.3).

7.4.5.3. Reaction Times

The main effect of WO was not significant neither was the effect of OA. The effect of AM was significant (by subjects only F_1 (3, 51) = 3.712, p = .017).

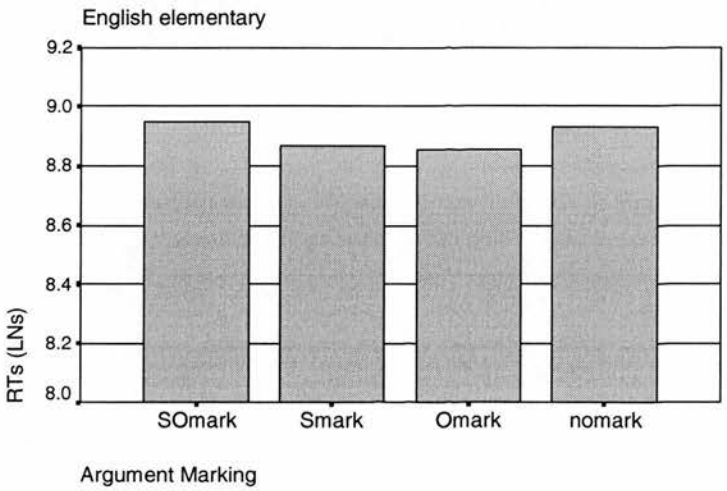


Figure 7.18: English elementary RTs: main effect of AM.

SOmark sentences differ significantly from -Omark (p = .038): EeG learners need more time when both arguments are marked for case, and they spend less time on sentences where only the Object is marked. This could be an indication of the difficulty that these learners have with morphology, and the more case markers the sentence has (i.e. markers for Subject and Object), the more time learners need, as they have not only to decide on the acceptability of the WO pattern, but also to decide whether the sentence is acceptable in terms of morphology.

The only significant interaction was WO by OA (by subjects only F_1 (5, 85) = 2.564, p = .032). In Figure 7.19, we notice that when the Object is animate we have longer RTs than when the Object is animate, the main exception being SVO, whereas in the case of VSO the difference is nearly non-existent.

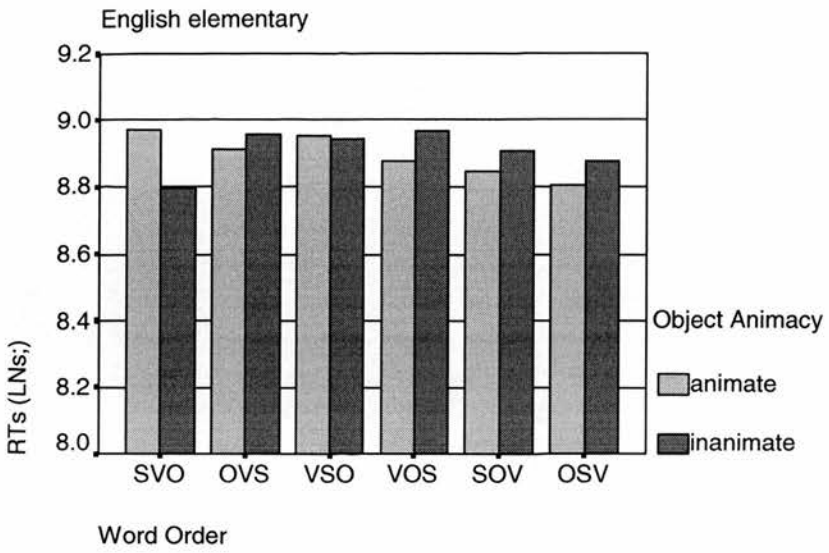


Figure 7.19: English elementary RTs: interaction of WO by OA.

In the post-hoc Tukey HSD test, however, no significant differences were found. This result along with the fact that the interaction was significant only in the by subject analysis, led to the conclusion that the differences among and between different WO types were not due to the independent variables.

7.4.5.4. Discussion

In terms of our research questions we can conclude the following:

- WO interacts with AM (WO x AM) and with OA (WO x OA), the result being 'improvements' of certain orders that become more (or less) acceptable. The question is which orders are affected –and why only some of them can be affected and not all of them. OSV and VSO are the 'unaffected' patterns. Since OSV does not differ from the ungrammatical fillers, we could assume that it is highly unacceptable and this is why it cannot become any better. OSV violates the SO and the VO sequences. As for VSO, if we accept that Greek is an VSO language, and if EeG speakers have realised that, then we can conclude that the basic order is the least effected by AM and OA manipulations.
- the S-first preference in the case of V-middle sentences could be interpreted as an SVO preference.

- although OA interacts with WO and certain patters become more accepted when the animacy of their Object is manipulated, no strong preference for an Animate-Inanimate sequence was found.
- RTs were only affected by AM: this could be due to the difficulties that EeG learners have with morphology rather than syntax. They know which sentence types they like and which they do not, and they decide equally fast in all cases, but they are not equally in ease with the different case endings. They need more time to decide about sentences that involve two Feminine NPs (i.e. more complex paradigm) than sentences in which only the Object is a Feminine NP.

Regarding the L1 effect, we can conclude that EeG's judgements are not influenced by the L1, since VSO, which is ungrammatical in English, is highly acceptable, and OSV, which is possible in their L1, is the very lowest in acceptability. Moreover, in their L1, EeG speakers use WO in order to en-/de-code grammatical relations. Their sensitivity to AM (significant interaction between WO and AM; effect of AM on RTs) shows that EeG speakers realise the role of inflectional morphology, which is to identify grammatical relations, and they give it a prominent status in their L2 grammar.

7.4.6. English advanced

7.4.6.1. Acceptability Judgments

The main effect of WO was significant (by subjects F_1 (5, 85) = 6.248, $p < .001$ and by items F_1 (5, 200) = 3.296, $p = .007$). SVO differs from SOV (by subjects only $p = .005$) and OSV (by subjects $p < .001$ and by items $p = .002$): EaG speakers do not like V-final patterns, possibly because of their OV sequence. OVS is better than OSV possibly because in OVS the Object is adjacent to the Verb, whereas in OSV it is not.

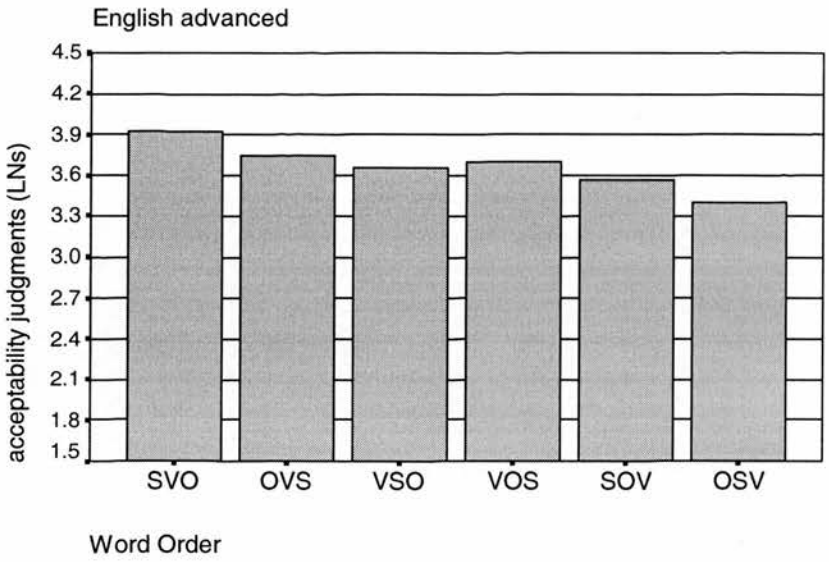


Figure 7.20: English advanced Acceptability Judgments: main effect of WO.

We could argue that the preference for the Object to be adjacent to the Verb is transferred from the L1. But, as we have already noticed, OSV is grammatical in English, and if EaG speakers were directly transferring from their L1, OSV shouldn't have been accepted less than the ungrammatical in the L1 VSO order.

No other main effects or interactions were significant.

7.4.6.2. The status of the least acceptable orders

With respect to the acceptability of the ungrammatical fillers, we see again (Figure 21) that sentences with order violations within the NP are the least acceptable sentence types. GENDER, on the other hand, and Case (N) are the most acceptable.

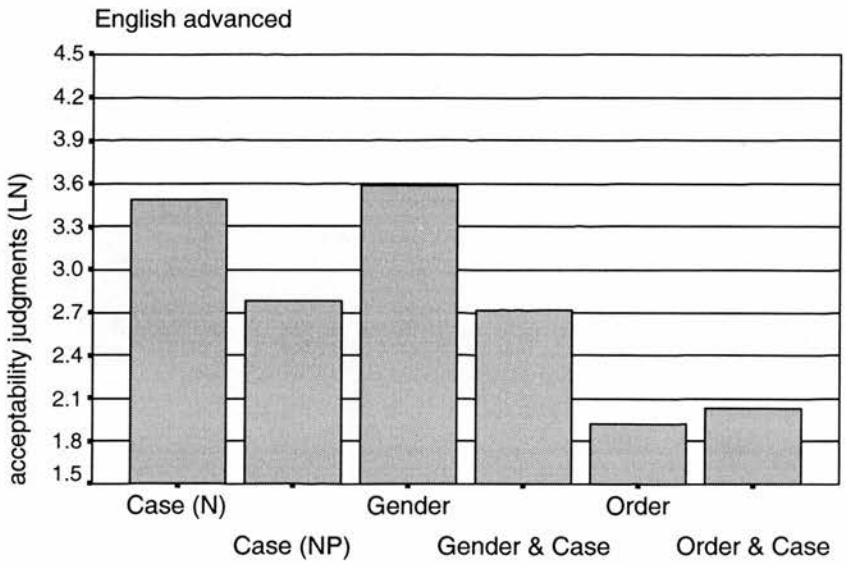


Figure 7.21: English advanced: Acceptability judgments for ungrammatical fillers.

Indeed, ORDER and Order & Case differ from all other filler types (Table 7.10), just like Gender does, with the exception of Case (N). It seems that EaG learners do not 'see' Gender and Case errors on Nouns, or that they think that such errors are not serious violations.

		t-	*p*-
Case (N) vs.	Case (NP)	5.332	.000
	Gender & Case	5.322	.000
	Order	7.641	.000
	Order & Case	9.911	.000
Case (NP) vs.	Gender & Case	-5.843	.000
	Order	4.216	.001
	Order & Case	4.252	.001
Gender vs.	Gender & Case	6.02	.000
	Order	7.941	.000
	Order & Case	7.744	.000
Gender & Case	Order	4.936	.000
	Order & Case	5.047	.000

Table 7.9: English advanced: Significant differences between the ungrammatical fillers (t-tests).

The fact that Case (N) is significantly more acceptable than Case (NP) could be an indication that for this group too case errors on the definite article and the noun are considered as more serious than case errors on the noun only.

When we compared the ungrammatical filler with the experimental sentences, we found that SVO differs from all filler types (Table 7.10). This means that EaG learners can 'see' the errors of gender assignment and case marking on the noun.

		t	*p*
SVO vs.	*all*		≤ . 005
OVS vs.	Case (NP)	-4.46	.000
	Gender & Case	-5.138	.000
	Order	-7.802	.000
	Order & Case	-7.357	.000
VSO vs.	Case (NP)	-4.667	.000
	Gender & Case	-5.046	.000
	Order	-7.459	.000
	Order & Case	-7.598	.000
VOS vs.	Case (NP)	-4.036	.000
	Gender & Case	-4.601	.000
	Order	-7.248	.000
	Order & Case	-7.339	.000
SOV vs.	Case (NP)	-3.195	.005
	Gender & Case	-3.55	.002
	Order	-6.92	.000
	Order & Case	-5.178	.000
OSV vs.	Order	-5.682	.000
	Order & Case	-5.178	.000

Table 7.10: English advanced: Significant differences between the ungrammatical fillers and the experimental sentences (t-test).

The fact that all other orders do not differ from GENDER, neither do they differ from Case (N), could be seen as a proof of a strong SVO preference, and as an indication that EaG speakers do not considered gender and case errors on Nouns as strong violations. Finally, the fact that OSV differs only from fillers that involve order errors, could mean that EaG speakers place OSV sentences towards the very least acceptable side of the acceptability continuum.

7.4.6.3. Reaction Times

As in all non-native groups so far, WO does not affect the RTs of EaG speakers either. The only significant result involves the interaction AM by OA (by subjects only F_1 (3, 51) = 3.777, p = .016).

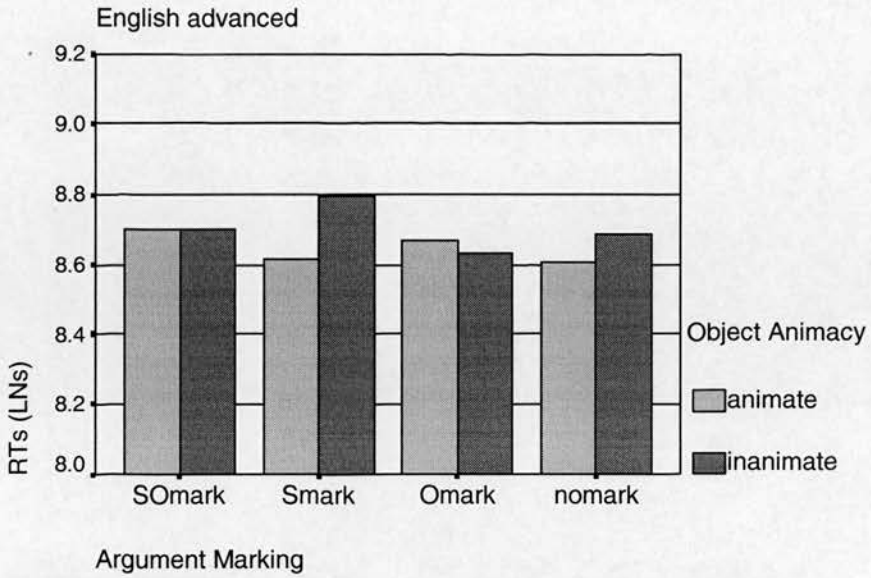


Figure 7.24: English advanced RTs: interaction of AM by OA.

The two Smark types (O=+/- animate) differ significantly, with RTs for 'Smark & O-animate' being faster than those for 'Smark & O-inanimate' (p = .015). 'Smark & O-inanimate' is significantly slower than 'Omark &O-inanimate' (p = .04) and 'nomark & O-animate' (p = .007). In other words, RTs become faster when the unmarked Object is inanimate and slower when it is animate or when it is inanimate and marked. Again, we can argue that this result mirrors the preference for inanimate entities to be the Objects; the lack of morphological markers on the inanimate Object facilitates the process of judging since EaG speakers do not have to check for the accuracy of case endings –a task that, as we have argued, seems to be demanding even at the more advanced levels of L2 development.

7.4.6.4. Discussion

WO preferences are not affected by case marking and/ or animacy manipulations. More specifically we found that:

- the two end points of the continuum coincide with the predicted ones: T-F and VO sequences are violated in OSV, which makes this order the least acceptable. EaG learners seem to have a strong SVO preference, which could be seen as an L1 influence, which, nevertheless, does not penetrates the L2 grammar in all cases: VSO is ungrammatical in the L1 but it can be more acceptable than other order that are possible in the L1, i.e. OSV.

- there is no evidence for a S-first preference or for the preference for animate entities to appear before inanimate in a sentence.
- RTs are not affected by WO, which could mean that at this level too English learners need equal amount of time to decide on the appropriateness of the morphological markers and then consider the acceptability of the WO of each sentence.

There is no clear effect of the L1: we could argue that VOS is highly acceptable as a result of the L1 structure. However, the fact that VSO is also highly acceptable, and better than OSV, indicates that EaG speakers base their judgements on assumptions about the L2 input and not (solely) according to the L1 grammar. Moreover, the significant interaction between WO and AM seems to indicate that EeG speakers are sensitive to morphological marking of arguments, which could hardly be transferred from their L1.

7.4.7. English: elementary & advanced

EeG learners accept SVO more than OSV, regardless of other factors, such as AM and OA. However, each of the two variables interacts with WO, the result being certain patterns to become more acceptable when certain values of these variables are present. Such an effect was not observed in the advanced group, and EaG learners prefer SVO regardless of case marking or animacy manipulations.

EeG learners do not distinguish between certain ungrammatical fillers, i.e. Order/& Case, and the V-final orders, whereas advanced learners do. We could thus conclude that the V-final patterns are less acceptable for the elementary group than they are for the advanced group. But in the elementary group, the post-hoc tests of the significant interactions WO*AM and WO*OA have shown that SOV can become more acceptable, if, for example, both arguments are marked for case (and then it does not differ from SVO-O/nomark). So, it seems possible that for English learners, OSV might become more acceptable at the advanced level.

RTs are not affected by WO in neither of the two groups. The interaction AM by OA was significant only in the advanced group: certain combinations of the values of the two variables can facilitate the process of judging sentence acceptability. This could mean that advanced learners have 'improved' their morphological knowledge, which in combination with animacy can make certain sentence types easier to be judged than others. On the contrary, the fact that the interactions 'WO by AM' and 'WO by OA' do

not affect judgments at the advanced level could mean that EaG learners believe that a certain order can not become better or worse, possibly because they have moved towards more structural criteria, now that morphology does not pose a serious problem in the identification of grammatical roles.

7.4.8. Comparing L1 and L2 groups

In order to examine whether there are any significant differences among groups, we subtracted the L1 judgments from the L2 judgments (the logarithms). For the rational and the analysis of the results (ANOVAs and post hoc *t*-tests), see section 5.3.4.

In the figures that follow we only see the mean points for the L2 groups; zero point represents the Greek judgments. Any point that is below zero means that the L2 learners judged that sentence type as less acceptable than the Greeks did, whereas any point that lies above zero means that L2 learners accepted that type of sentence more than the Greek control did.

The pattern of acceptability is now different form the patterns presented in the previous sections of this chapter: in the figures that follow, the Greek judgements are represented in a straight line (zero point for all six WO types); it follows that the more straight an L2 line is, the closer it gets to the L1-control line.

7.4.8.1. Acceptability Judgments

In the ANOVA conducted the only significant interaction that involved L1 was that of L1 by AM by OA (F_1 (3, 204) = 3.122, p = .027). As we see in Figure 7.25, the language group that seems to behave differently from the Greek control (=zero point) is the Albanian group, whereas English speakers (elementary and advanced) are closer to the target.

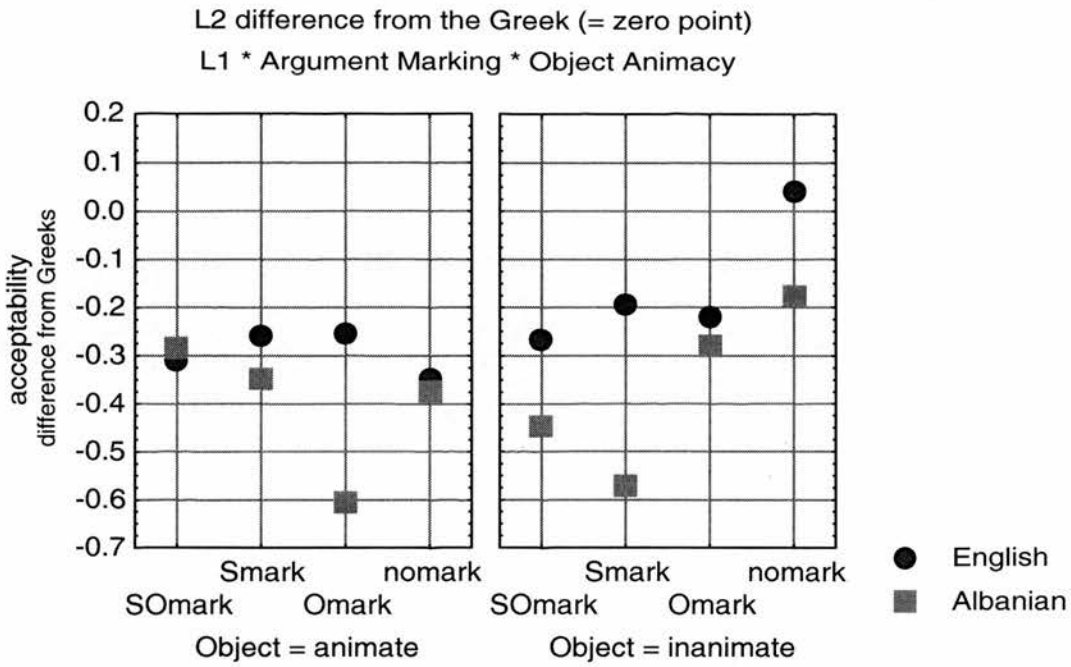


Figure 25: difference of the L2 acceptability judgments from the Greek control group (= zero point): interaction of L1 by AM by OA.

In the post hoc *t*-tests, nevertheless, none of the differences was found to be significant. We could thus conclude that Albanian speakers of Greek have a tendency to disprefer sentences in which the Subject is marked and the Object is inanimate, as well as sentences in which the marked Object is animate.

No other interaction that involved L1 and/or Level was found to be significant.

These results could indicate that, regardless of the differences in the post-hoc comparisons we discussed for each group of speakers, overall L2 learners have the same judgments as native speakers of Greek. Since the two language and the two level groups (Albanian and English, elementary and/or advanced) do not differ from Greek controls, we can conclude that their judgments are not influenced either by their L1s nor by their level. In other words, from very early on, L2 speakers can achieve nativelike performance during the task of judging sentences with different WOs.

7.4.8.2. Reaction Times

In the ANOVA conducted the effect of L1 was not significant, whereas the effect of Level was (F_1 (1, 68) = 6.908, p = .011). Unsurprisingly enough, elementary learners had longer RTs than advanced (t = 4.355, p < .001). Elementary learners also differ from the control group (t = -7.983, p < .001).

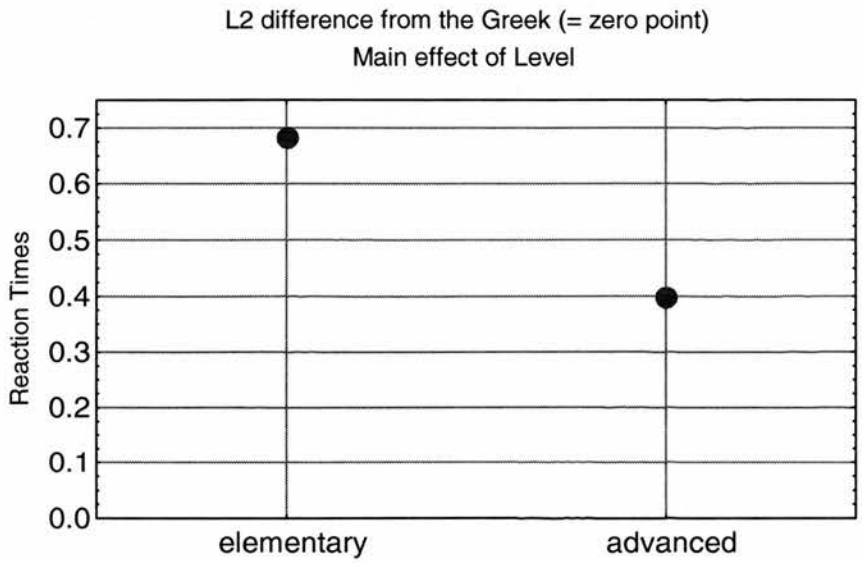
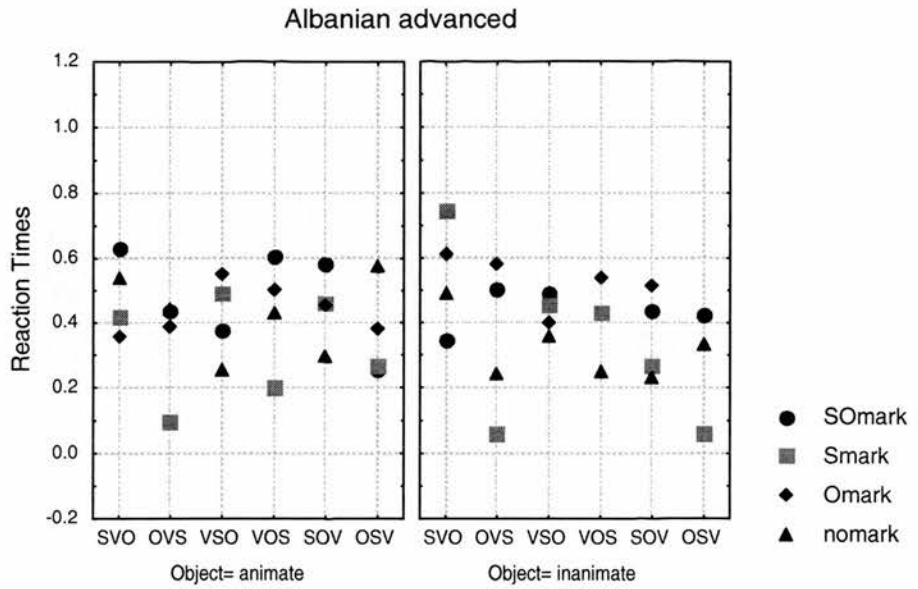
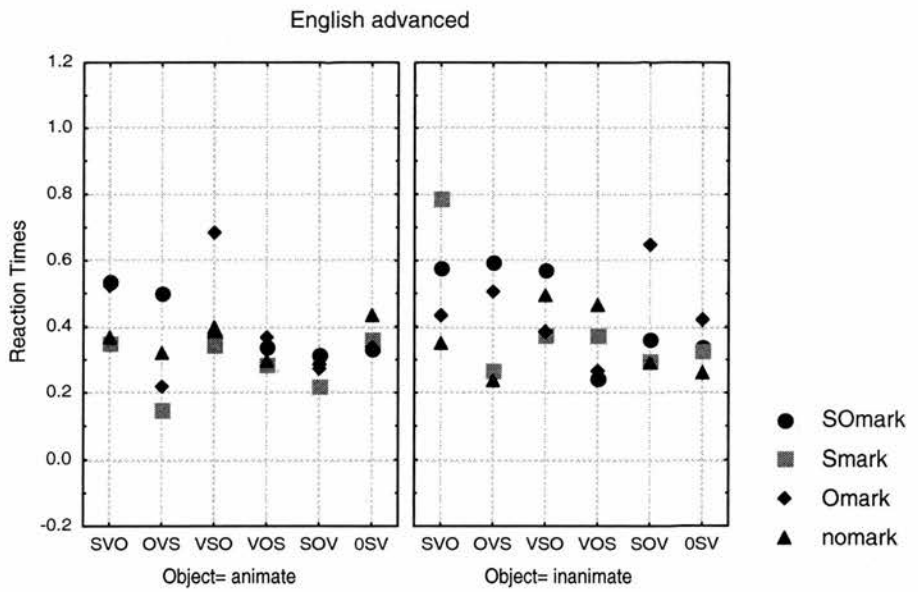


Figure 7.26: difference of the L2 RTs from the Greek control group (= zero point): main effect of Level.

What is more important is that advanced learners were significantly slower from the Greek group (t = -3.889, p < .001). As we see in Figures 7.27, advanced speakers are generally far from zero point, regardless of WO, AM and OA considerations.



(a)



(b)

Figures 27 (a) & (b): L2 Reaction Times: difference of the Advanced groups from the Greek control group (= zero point): interaction of L1 by Level by WO by AM by OA.

The interactions that involved L1 and/or Level were not found to be significant.

We can therefore conclude that advanced learners become faster over time (they differ from elementary) but they do not manage to achieve a native-like performance in terms of RTs during the task of sentence acceptability. Their delays in responses could be attributed to different factors: possible assumptions are that L2 speakers are slower

readers than native speakers, or that the activation of the L1 knowledge and the competition with the L2 has an effect on judgements. A hypothesis that seems also plausible is that L2 speakers need more time in order to check for the accuracy of the L1 morphological markers on nouns, articles, and verbs, since they have not yet fully mastered the complex morphology of Greek. If reading time or checking time are the causes of these delays, we can assume that at a near-native level, L2 speakers will be even faster and that they will not differ from the Greek.

7.5. Summary and conclusions

Native speakers of Greek accept SVO more than the other five orders and strongly disprefer OSV. This finding supports our hypothesis about the T-F preference and the preferences concerning the position of the Object in the sentence. The L2 learners' judgments do not differ significantly from that pattern. Native speakers' judgments are also influenced by the interaction of AM by OA, and sentences in which there is no morphological marking on the two NPs and the one of them is inanimate are less acceptable than sentences with marked arguments, or sentences with animate Object but with unmarked constituent(s). We assumed that these sentences are lower in acceptability because those inanimate entities could be the Subjects of the sentences (recall that the verbs were pre-tested so that there would be no preference for one NP to be the Subject and the other the Object), and the difficulty, caused by this factor, to interpret the sentence might result in its reduced acceptability. In other words, we could assume that the presence of one inanimate and unmarked NP makes the ambiguity more prominent and less easily solved.

Although none of the L2 groups exhibits the same pattern with respect to the effect of this interaction (AM by OA), when we compared all groups, no significant differences emerged between the advanced groups (Albanian and English) and the native control.

Since WO preferences were affected neither by the Level nor the L1 of the non-native speakers of Greek, we can conclude that intuitions about the acceptability of the L2 Greek orders are based on L2 speakers' grammatical knowledge which is not influenced by the L1 structure: if it were, then English elementary speakers should disprefer orders that are ungrammatical in their L1. These results also indicate that case marking and animacy of the Object do not influence the acceptability of syntactic

structures, at least not as directly as it has been assumed (see section 3.2.2). The significant interaction 'AM by OA' in the case of native and AaG speakers, and the significant three-way interaction 'L1 by AM by OA' in the comparison among groups, are the only signs that a combination in the ordering of case marked NPs and conceptually accessible entities could affect processing the result being varying degrees of acceptability too. On the contrary, WO patterns seem to be unaffected by processability considerations (AM and OA).

The fact that L2 speakers' RTs are longer than those of the natives is not interpreted as an indication of the different ways of accessing grammatical knowledge, or of the different kind of that knowledge: rather, it is indicative of the difficulties that the L2 learners have with morphology, especially at the more elementary stages. It has been argued that the process of checking grammaticality –and we can extend it to acceptability- occurs in two phases: first the relations between Subject, Verb and Object are checked, and then the relationships within the NP constituents are examined (Moore 1972, reported in Schütze 1996:73). We can assume that these processes are rather demanding for L2 speakers because they involve access to the L2 morphological knowledge too. The more advanced the L2 speakers become, the more they improve this knowledge and the control over it. Additionally, L2 learners have the additional (compared to L1 speakers) task to 'suppress' relevant, competing L1 knowledge that is activated in parallel with L2 knowledge (cf. sections 3.2 and 3.3). Being slower does not mean being different in nature, but it could mean 'having more things to do' before arriving to the nativelike judgment.

Chapter 8

Synthesis

In this chapter we put together the findings from the three experiments for each group of speakers, in order to construct the complete picture of L2 performance. We discuss how the combination of different kinds of data helps us understand whether -and how- the L1 influences L2 performance.

First, we summarize the significant interactions found in the group comparisons that concern the L1 effect. We discuss the performance patterns found in each case and how these differences could contribute to a better understanding of L1 transfer. We also look at the performance of individual L2 speakers, focusing especially on the interpretation strategies of ambiguous utterances, in frequencies of VSO utterances during production, on RTs and morphological accuracy of VSO sentences during the comprehension and judgment tasks, and on speakers' acceptability judgments with respect to the same WO pattern. We run statistical tests to examine whether performance in one task correlates with performance in the other tasks. At the last section we draw some general conclusions regarding the effect of the L1 during the three experiments.

8.1. The L1 effect

The hypothesis concerning the different L1 effect in the three experiments seems to be verified by the different significant interactions that involved L1, namely by:

- the four-way interaction 'WO by AM by OA by L1 by Level' in the comprehension experiment: L2 groups, with the exception of EeG, do not constantly interpret V-initial ambiguous utterances as VSO and they differ from the native control. EaG speakers are also more likely than natives to mis-assign the Object role on the 1st NP in VSO-Omark utterances.
- the two-way interaction 'WO by L1' in the production experiment: English and Albanian speakers produced fewer VSO and OclVS utterances than Greek speakers

did. Moreover, English speakers produced significantly more SVO utterances than Greek and Albanian speakers.

- the three-way interaction L1 by 'AM by OA' in the acceptability judgment experiment. The fact that Albanian speakers judged some sentence types as less acceptable than English and Greek speakers did ('Smark & O-inanimate'; 'Omark & O-animate'), could be seen as an indication of an L1 effect. Given that this effect has nothing to do with the acceptability of the WO patterns in question, we will not discuss this finding any further.

The first, and more apparent, conclusion that can be drawn is that

(a) L1 influence on WO preferences might be more apparent during production and comprehension than during the task of judging sentences.

Since the L1 did not have a significant effect on L2 speakers' judgments, we can assume that, at least with respect to the phenomenon under investigation, transfer from the L1 is more directly mirrored on processing preferences rather than on L1 grammatical knowledge. L1 and IL (like those discussed in Chapter 6) strategies are used as a means of copying with processing difficulties that fast production and on-line comprehension raise.

The second conclusion could be that

(b) L1 influence does not necessarily characterize the early stages of L2 development, but, depending on the task that L2 learners perform and the characteristics/strategies of their L1, it might become apparent at more advanced stages.

During comprehension, elementary EeG speakers do not differ from native controls in terms of the strategies they deploy for the interpretation of ambiguous utterances, as opposed to their advanced counterparts. We could argue that EeG learners are closer to the target language than EaG speakers, because the starting hypothesis of English-Greek learners could be that the L1 and the L2 are totally different and therefore L1 strategies can be of no help.

A third conclusion could be that

(c) certain aspects of L2 performance, like morphological accuracy, are not affected by the L1: it is the developmental stage that plays a more crucial role.

Contrary to our hypotheses (cf. section 4.3), during comprehension and production, accuracy in terms of morphological markers seems to be a matter of Level of L2 proficiency, not of L1 influence. During comprehension, elementary speakers are significantly less accurate than advanced speakers, regardless of their L1. Similarly, during production, EaG speakers are not significantly worse in the use of case markers than their Albanian counterparts. During both tasks, both groups of elementary speakers seem to have realized the appropriate agreement settings of the L2.

This finding seems to support the claim that L1 morphology cannot be transferred in the L2 (see Odlin 1998: 82 for discussion and references; cf. section 4.1.2): the fact that English and Albanian speakers' performance does not differ in terms of accurate interpretation and production of L2 utterances could be seen as an indication that having a tendency to mark case does not make case morphology easier to learn. This 'no difference' between L2 groups and their difference from the native, suggests that L2 speakers have problems controlling their L2 (either limited or more advanced) morphosyntactic knowledge and this is why they resort to strategies or tendencies, which might be affected by their L1.

In production, however, the two-way significant interaction (i.e. L1 by WO) indicated that English speakers produced significantly more SVO utterances and significantly fewer VSO and OclVS utterances than native speakers. We could thus argue that the L1 structure does affect speech production, and conclude that speakers coming from a rigid-WO language do not use WO patterns that are ungrammatical in their L1. However, there are three counter-arguments that have to be high-lightened: first, English speakers do comprehend, produce and accept patterns that are not possible in their L1 (like VS(O)). Second, the fact English speakers do no differ from Albanian speakers of Greek in terms of WO use during production, suggests that the L1 effect is not as strong as initially predicted (cf. relevant discussions in Chapters 2, 3, and 4). And third, the interaction between Level and WO had also a significant effect on WO usage: elementary speakers, regardless of their L1, produced more SVO utterances than advanced speakers, and both groups differ from natives. This is why we argued that there is an SVO-strategy that could be an IL strategy (see Chapter 6 for the relevant discussion), which facilitates accurate production; the more advanced L2 learners become, the more likely it is for them to abandon this strategy.

The fourth conclusion therefore could be that

(d) the L1 might influence the 'applicability' of an IL strategy: if the Il strategy conforms to the L1 structure, then L2 speakers might be less willing to abandon it.

In other words, we assume that the L1 does not always have a 'direct' impact on L2 performance. As for the question why L2 speakers do not produce L2 WO patterns that they accept as grammatical or patterns that they can understand, we argued that this could be the result of an 'overload' situation (cf. section 3.1.1), like in the task of speech production, during which L2 lexical, morphological, syntactic, phonological, etc. knowledge is not only competing with all relevant L1 knowledge, but it has also to be used effectively in order for an 'accurate' L2 sentence to be produced; all these could perhaps make the task of L2 speech production more demanding and the need for (L1) strategies more 'urgent'. This amounts to say that the L1 influence might be more apparent during more demanding tasks, which 'force' L2 speakers to use their well-automatized L1 processes and conform –more or less– to strategies such as that of the 'least effort' (section 6.2.6.4).

A fifth conclusion could be that

(e) the L1 does not have an effect on RTs, which depend on the level of L2 proficiency.

Elementary speakers are slower than advanced speakers of Greek, and both Level groups are significantly slower than native speakers. The same pattern was found in comprehension and acceptability judgments, and we could argue that it is also true for production, although RTs were not measured in the same way in that latter task (see section 6.2.4). As already mentioned, it seems that having a free-WO L1 and the tendency for overt case marking does not elevate the difficulties that L2 acquisition of morphological and lexical properties create.

To summarize so far: the patterns we found for production and comprehension of L2 sentences differ, as L2 speakers use different strategies for each task, strategies that are either L1-based or not (see ibid.), depending on the 'problem' they are facing each time and the aim they are trying to accomplish. In production, there seems to be an SVO-preference across speakers with different L1s, especially at the elementary level, the result being a non-nativelike performance of the English and Albanian groups. In comprehension, the picture is more complicated: if different strategies are possible in the L1 and the L2 (e.g. VO and S-first strategy), then L2 speakers might fail to establish

strong preferences (e.g. Albanian speakers during comprehension). If an L2 strategy (e.g. the S-first strategy) is not as helpful as speakers would expect it to be (erroneous interpretation of VOS utterances), then the L1 strategies (e.g., the VO-strategy in the case of English speakers) might be called for. We could further assumed that there might be a next developmental stage where these L1 strategies are also considered as 'problematic', the result being a further change in performance. During the task of judging sentences, L2 speakers are not driven by the same L1 processing strategies, possibly because they have more time to consult their L2 knowledge, the result being a nativelike performance.

8.2. Individual performance

There are some indications in the data of L2 speakers of Greek that the assumption about a next developmental stage might be true: during production certain L2 speakers had high percentages of accuracy and produced a variety of non-SVO utterances. It would be interesting to examine whether these speakers were also more accurate than the other participants of the group in the comprehension task. Comparing individual performance during the three tasks could allow us to verify whether a speaker's nativelike performance in one task 'guarantees' nativelike performance in the other task(s) too. In order to address this issue, we will now summarize L2 speakers' performance individually, by focusing at those variables that relate to our general research questions (Chapter 4).

More specifically, we will concentrate on VSO comprehension, production and acceptability, and we will examine whether L2 speakers' performance regarding this order correlates within and across tasks. We focus on VSO since it is the pattern that appears across tasks and in all L2 groups, and we could run correlation tests in order to see whether use of VSO correlates with accurate production/ interpretation of the same pattern, as well as with its higher acceptability.

The variables that we are going to focus on are:

1. the use of L2 strategies during comprehension, by looking at the interpretation of V-initial ambiguous utterances,
2. morphological accuracy in VSO utterances during comprehension and production, i.e. whether case markers are used in order to de-/en-code grammatical relations in a nativelike way,

3. the production of VSO utterances,
4. mean difference from the Greeks for the acceptability of VSO sentences,
5. RTs in the comprehension experiment and in MELA in VSO sentences.

For variable 1 we summarize each participant's percentages. For variables 2 and 3 we use the total numbers of the VSO utterances that were used by each participant and the total numbers of errors. Regarding variables 4 and 5 we used the mean judgment and the mean RT (log-transformed) of each participant[1]. We then did rank order correlations in each group, within and across tasks (Pearson Product-Moment Correlation).

8.2.1. Greek native

In Table 8.1 we see that only one native speakers of Greek did not have a clear interpretation strategy for V-middle ambiguous utterances (cf. Chapter 5).

	VSO in comprehension			VSO in production		VSO in MELA	
	VSO interpretation	errors	RTs	n of sentences	errors	Judgments	RTs
ATZ	100	0	7.79	0	0	3.92	8.54
CTS	75	1	7.53	16	0	4.41	8.1
EYE	100	0	7.93	3	0	4.48	8.18
GCO	75	1	7.8	5	0	3.77	7.75
GVL	75	1	7.6	7	0	4.83	8.17
ILU	75	0	7.75	3	0	4.76	8.67
KEM	50	2	7.64	17	0	2.64	7.62
KGO	100	0	7.82	4	0	2.9	8.01
KMA	75	1	7.74	2	0	4.23	8.36
LNI	100	1	7.85	4	0	4.28	7.59
LSI	100	0	7.59	0	0	3.18	8
MMA	100	0	7.81	14	0	3.84	8.13
MXI	100	1	7.85	6	0	3.85	8.3
NAD	75	1	7.79	3	0	4.32	8.92
SKA	100	0	7.9	4	0	3.46	8.83
TLE	100	0	8.11	3	0	3.68	8.39
VNI	100	0	7.98	1	0	3.76	8.48
XKO	100	2	8.02	11	0	2.26	8.55

Table 8.1: Greek native speakers' performance in the three tasks (Comprehension, Production and Judgment) regarding VSO.

[1] We did not use the difference from the Greek variable because we wanted to investigate L2 performance on 'its own right'; we also believe that percentages and means could make the discussion more comprehensible, and comparisons among groups and speakers much clearer.

Native speakers who had a clear preference for a VSO interpretation seem to be more accurate in the interpretation of unambiguous VSO utterances too. Moreover, native speakers' performance during production varied with respect to the use of VSO utterances: three participants did not use any VSO utterances, two participants had used this order once and twice, whereas three participants produced more than 15 VSO sentences.

Indeed, regarding the first observation, the significant negative correlation between VSO interpretation and VSO accuracy ($r = -.5629$, $p < .05$) seem to indicate that participants who interpreted V-initial utterances as VSO and occasionally as VOS (less than 75% of VSO interpretation) tended to make more erroneous interpretation of VSO unambiguous utterances than people who clearly preferred a VSO interpretation (75% or 100%; Figure 8.1).

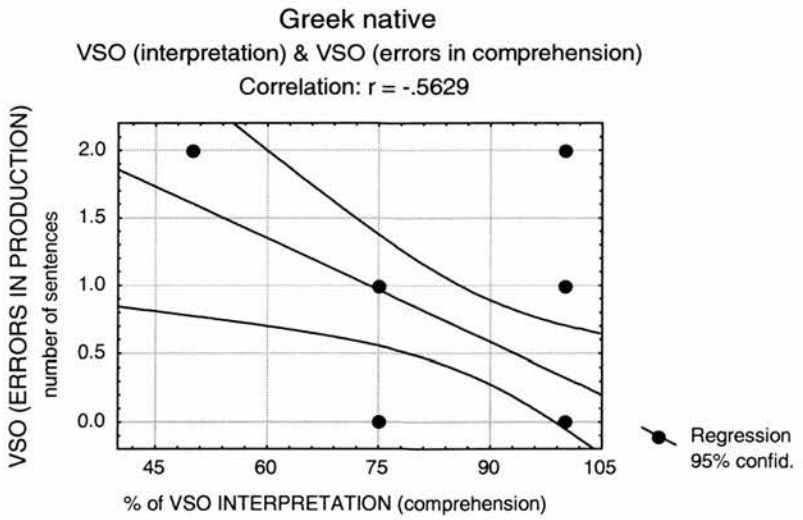


Figure 8.1: Greek native correlation between VSO interpretation and VSO errors in comprehension.

Moreover, participants who preferred a VSO interpretation of ambiguous utterances during comprehension also tended to have longer response times than participants who also had some VOS interpretations during the same task ($r = .596$, $p < .05$); in other words, these latter speakers responded faster than those who were more consistent in their VSO interpretations, and this could be a reason for the error items and the less consistent use of the S-first strategy (Figure 8.2; cf. section 5.3.1.1).

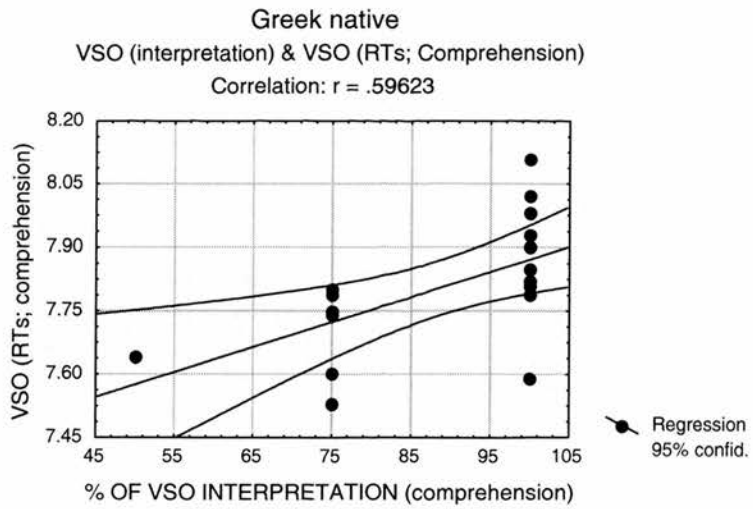


Figure 8.2: Greek native correlation between VSO interpretation and VSO RTs during the comprehension experiment.

Across tasks, the only significant correlation was the one between VSO production and VSO errors during comprehension (r = .577, $p < .05$): native speakers who produced more VSO utterances had also the tendency to make more erroneous interpretations of VSO unambiguous utterances during comprehension (Figure 8.3).

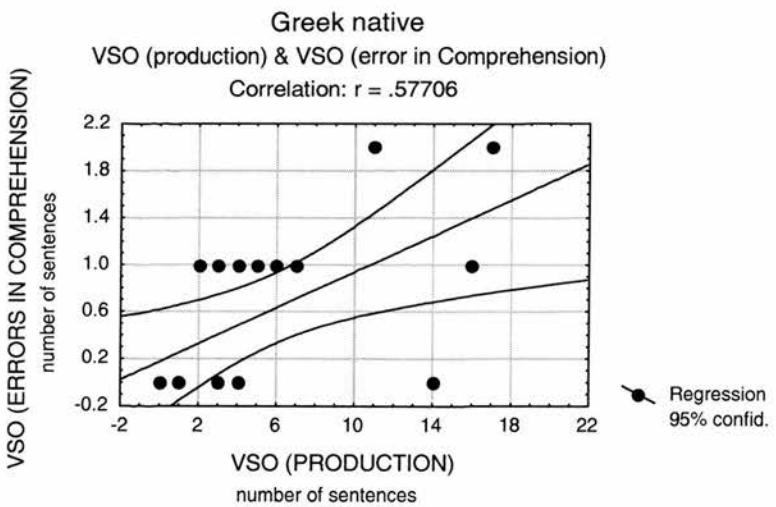


Figure 8.3: Greek native correlation between VSO in production and erroneous interpretations of VSO during comprehension.

This could be an indication that native speakers with a more 'flexible' production have also the tendency for a more 'flexible' interpretation that does not always conforms to the S-first strategy and it might also override morphological indications. It has to be

noted however that their VOS interpretations during comprehension do not coincide with the lexical preferences found in the pre-test of the comprehension experiment: speakers do not prefer a VOS interpretation so that the Subject will be the 'preferred' Subject entity of the given verb (cf. section 5.2.2). The preferred Subject of a certain Verb as it was revealed in the pre-test (cf. see Table 2 in Appendix II) was chosen to be the Subject of the Verb only twice in the comprehension experiment. Neither were the VSO interpretations preferred with a specific verb or VOS ones with some other verb. Thus, we can assume that VOS interpretation and more errors during production correlate not because the process of comprehension might also be lexically-driven like production, but rather because some native speakers with more 'flexible' production (fewer SVO utterances) have also a more 'flexible' sentence interpretation strategy, which might result in more errors, as hearers might not pay attention to morphological case markers.

Since no further significant correlations were found, we can conclude that this set of data seems to indicate that people who produce more VSO utterances do not also prefer to interpret ambiguous utterances as VSO, neither do they believe that VSO is more acceptable than speakers who avoid this pattern during production. In other words, native speakers might not use VSO utterances, but that does not mean that they accept this pattern less than speakers who have a preference for this order during production. The interesting finding is that WO preferences during production might correlate with errors in sentence interpretation, since speakers who are more flexible during production seem to be more 'flexible' in comprehension too, the result being more erroneous interpretations during the latter task.

8.2.2. Albanian elementary speakers

In Table 8.2 we summarize the performance of AeG speakers regarding the VSO order in the three tasks. The variability in terms of interpretation strategies of ambiguous utterances is the first thing that we notice: in fact, we can identify three different groups of AeG speakers, according to the strategy they use for the interpretation of the ambiguous V-initial utterances:

- the 'S-first' group, consisting of 8 AeG speakers who interpreted such utterances as VSO, either 100% of the times (AAL, JGJ) or 75% of the times (AKO, BCU, EXO, GOS KAU, KBO).

- the 'VO' group: 4 speakers used a VO-strategy (ADR, GMO, ICE, MDH: 25% of VSO interpretation).

- the 'no preference' group, consisting of 6 participants who do not seem to deploy only one strategy for the interpretation of ambiguous utterances.

The same speakers, however, are not equally accurate in the interpretation of unambiguous utterances neither do they seem to have different RTs, depending on whether they prefer a VSO interpretation or not.

	VSO in comprehension			VSO in production		VSO in MELA	
	VSO interpretation	errors	RTs	n of sentences	errors	Judgments	RTs
AAL	100	0	8.58	1	0	2.95	9.55
ABA	50	4	8.36	1	0	3.29	9
ABE	50	3	8.05	0	0	3.19	9.55
ABR	50	1	7.99	1	0	3.29	8.91
ADR	25	1	8.16	0	0	3.19	9.21
AKO	75	2	7.98	0	0	4.43	10.19
BCU	75	1	8.23	0	0	3	9.29
EXO	75	1	9.19	0	0	4.18	9.88
FCO	50	2	8.5	1	1	3.66	9.06
GMO	25	0	8.29	2	0	3.08	8.78
GOS	75	1	8.16	2	1	2.09	8.39
ICE	25	3	8.03	0	0	3.06	8.99
ISH	50	1	8.01	0	0	4.42	9.17
JGJ	100	2	8.98	0	0	4.31	8.84
KAU	75	5	7.81	1	0	4.04	8.94
KBO	75	3	7.76	1	0	2.38	9.05
MDH	25	0	8.14	1	0	2.75	9.56
VSE	50	1	8.28	1	0	3.53	8.92

Table 8.2: Albanian elementary speakers' performance in the three tasks (Comprehension, Production and Judgment) regarding VSO.

These correlations were not significant, and we could therefore assume that accuracy during production and comprehension is not related to the use of VSO during the former task or to VSO interpretation of ambiguous sentences during the latter task.

Conversely, there is a significant correlation between VSO production and VSO judgments ($r = -.545$, $p < .05$): AeG speakers who never produced a VSO sentence were more likely to consider VSO sentences as more acceptable during the MELA task than speakers who produced VSO utterances once ore twice (Figure 8.4). This is a very important finding, indicating that L2 production data are not always representative of L2 speakers' WO repertoire: if we had only looked that AeG speakers' production, we might have assumed that some speakers do not produce VSO because this structure cannot be generated by their grammar; however, the comparison among tasks shows that

these speakers accept VSO utterances more than speakers who occasionally produce VSO. The fact that they never produce this structure might have to do with reasons other than grammatical representations, such as for example the difficulties with L2 morphology.

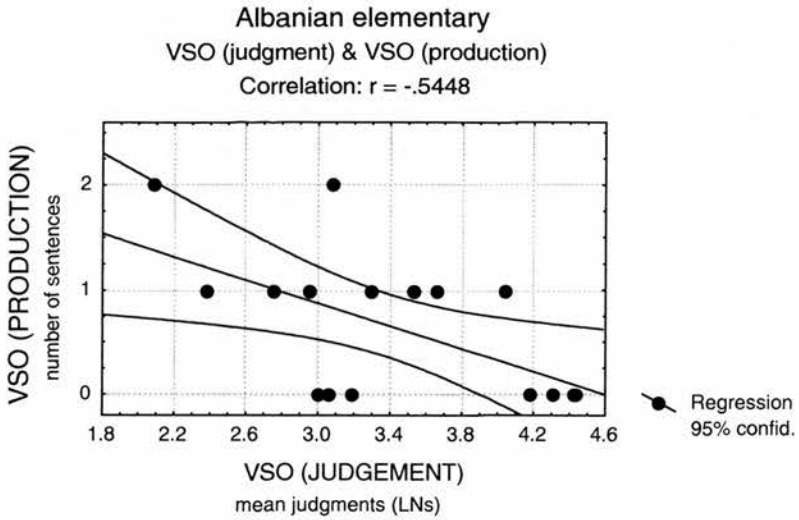


Figure 8.4: Albanian elementary speakers: correlation of VSO acceptability judgments and VSO production.

Moreover, AeG speakers who used VSO sentences during production seem to have a tendency to respond faster to VSO sentences in the acceptability judgment task ($r = -.57$, $p < .05$). We could assume that for speakers who produce VSO, the process of parsing VSO sentences might be more 'automatized' than for speakers who never produce VSO utterances.

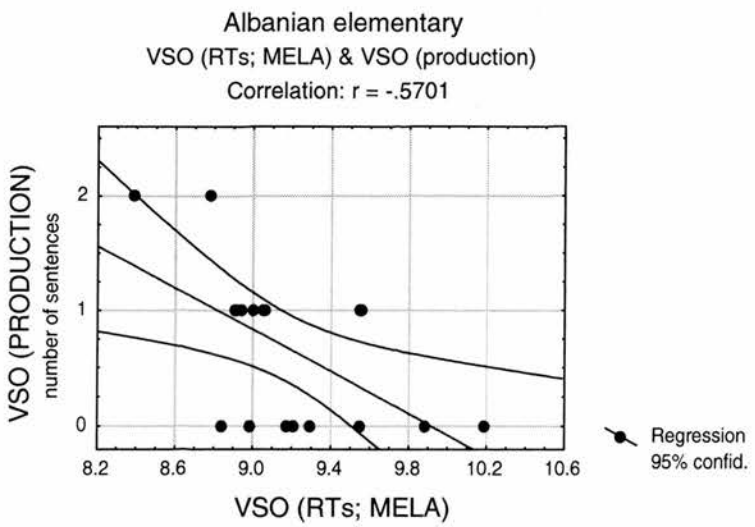


Figure 8.5: Albanian elementary speakers: correlation of VSO RTs in acceptability judgments and VSO in production.

Since no other correlations were significant in the group of learners, we could conclude that AeG speakers might accept sentences that they never produce and that the interpretation strategies that are used during comprehension do not directly influence the process of judging sentences. Conversely, the easiness of production of VSO sentences seems to correlate with faster response times during the task of judging as well as with the acceptability of these sentences.

8.2.3. Albanian Advanced

In Table 8.3 we summarize the performance of each AaG speaker in the three tasks. As in the AeG group, there is variability in terms of the interpretation strategies, but also in terms of VSO production.

	VSO in comprehension			VSO in production		VSO in MELA	
	VSO interpretation	errors	RTs	n of sentences	errors	judgments	RTs (means)
ABO	75	4	8.12	1	0	3.86	8.76
ADI	25	3	7.89	1	0	1.23	8.42
AME	50	0	8.28	2	0	1.37	9.17
ECE	0	2	7.9	1	0	4.2	8.77
ETR	75	0	8.15	14	0	4.57	8.68
FDR	100	1	7.9	0	0	3.77	9.05
FMU	75	0	8.02	0	0	3.76	8.53
FXH	100	4	7.68	4	0	4.36	9.12
KBO	50	1	8.11	1	0	2.35	8.68
KCA	100	1	7.97	13	1	3.42	8.83
LSO	0	1	8.02	0	0	4.43	8.63
MGJ	25	1	7.92	8	1	3.86	8.63
MMA	25	1	8.58	0	0	2.78	8.41
OKO	100	1	8.29	0	0	4.4	9.02
RGO	100	1	7.72	2	0	4.18	8.34
SKA	25	0	8.24	3	0	1.9	8.76
SRA	0	1	7.84	10	0	4.02	8.15
ZHA	100	0	7.87	2	0	3.36	8.94

Table 8.4: Albanian advanced speakers' performance in the three tasks (Comprehension, Production and Judgment), regarding VSO.

Regarding the first issue, AaG speakers could be sub-divided into three:

- the S-first group, consisting of 9 speakers, who either interpreted all V-initial utterances as VSO (100% of VSO interpretation: FDR, FXH, KCA, OKO, RGO, ZHA), or the majority of them (75% of VSO interpretation: ABO, ETR, FMU).

- the VO group, consisting of 7 speakers, who either interpreted all utterances as VOS (ECE, LSO, SRA), or the majority of them (ADI, MGJ, MMA, SKA: 25% of VSO interpretation).

- the 'no preference' group, which consists of 2 speakers (AME, KBO: 50% of VSO interpretation).

Compared to the speakers of the AeG group, AaG speakers seem to have clear preferences (4 elementary speakers belonged to the 'no preference' group whereas only 2 advanced speakers did not have a clear interpretation strategy). Apart from that difference, there seems to be no change regarding the S-first strategy: 8 elementary and 9 advanced speakers belonged to the S-first group, whereas 6 elementary and 7 advanced belonged to the VO group. We could conclude that L2 speakers do not amend the interpretation strategies they deploy as their level of proficiency in the L2 advances, given that their strategy is a possible option in the L2 and it does not create problems for comprehension (cf. Chapter 5).

The interpretation strategies and the morphological accuracy do not seem to be related in the case of this group either. Indeed, the correlation between VSO interpretation and VSO errors during comprehension do not correlate.

However, the VSO interpretation correlates with VSO RTs in the acceptability judgment task ($r = .492$, $p < .05$): AaG speakers who preferred a VSO interpretation during comprehension seem to require more time in order to judge VSO sentences. We could assume that this is a result of the competing knowledge and strategies (cf. Chapters 6 and 7).

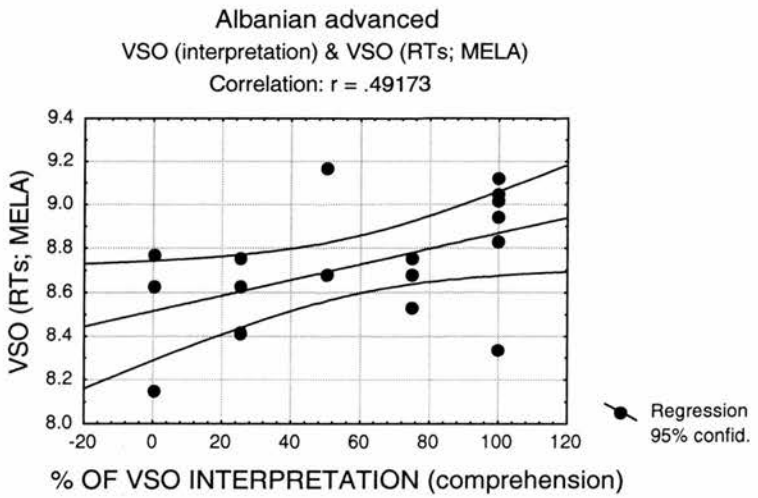


Figure 8.6: Albanian advanced: correlation between VSO interpretation during comprehension and VSO RTs during acceptability judgments.

Turning to production, variability is also apparent (Table 8.3): based on the production of VSO utterances, we could subdivide AaG speakers into the following groups:

- the VSO group, consisting of 3 speakers (ETR, KCA, SRA, MGJ) who produced VSO utterances 8 or more times (expected total number of WO utterances = 36; cf. Chapter 6).

- the emerging VSO group, consisting of 7 speakers (ABO, ADI, ECE, KBO, RGO, SKA, ZHA) who produced VSO utterances less than 5 times.

- the no-VSO group, consisting of 5 speakers (FDR, FMU, LSO, MMA, OKO) who never produced VSO utterances.

In terms of errors, the AaG speakers were very accurate and only two of them did not mark NPs in a nativelike way. These two speakers do not belong to the no-VSO group.

The positive correlation between VSO in production and VSO errors in production ($r = .561$, $p < .05$) indicates that speakers who produced more VSO utterances were more likely to case-mark NPs in a non-nativelike way (Figure 8.6). We could conclude that this result seems to conform to the hypothesis about the avoidance strategy and the facilitating role of SVO, and the assumption that VSO is a harder to produce order (cf. section 6.2.6.4).

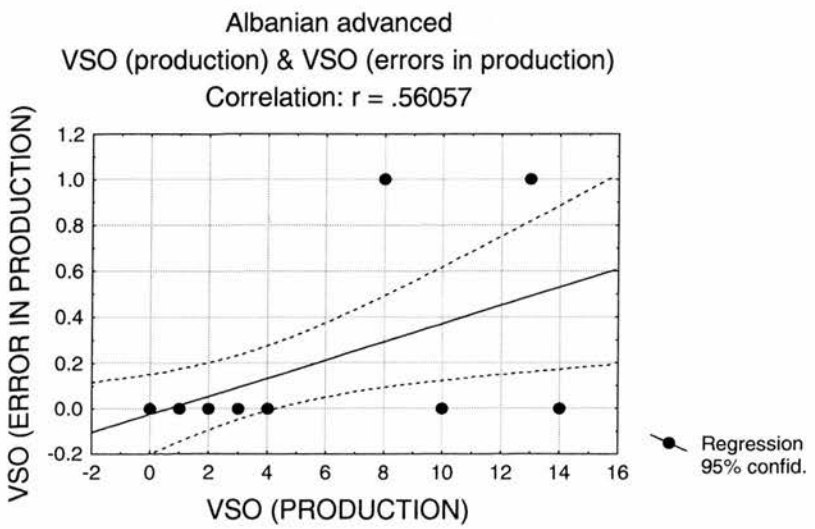


Figure 8.7: Albanian advanced: correlation between VSO production and VSO errors in production.

However, one could perhaps argue that it sounds nothing but logical to assume that the more sentences speakers produce, the more likely it is for them to make more errors. In order to verify that this it is not always the case, we also looked at AaG speakers SVO accurate production and compared it to the errors in SVO order. We found that in the case of SVO errors in production are not more frequent when SVO is used more frequently: SVO errors and SVO production do not correlate (Figure 8.7). We could therefore conclude that these results conform to the hypothesis that VSO is possibly avoided due to the difficulty AaG speakers have to co-ordinate their morphological and syntactic knowledge (cf. Sorace (in press)), and SVO is preferred due to its facilitating role for accurate production in terms of morphological marking (see section 6.2.6.4 for a discussion).

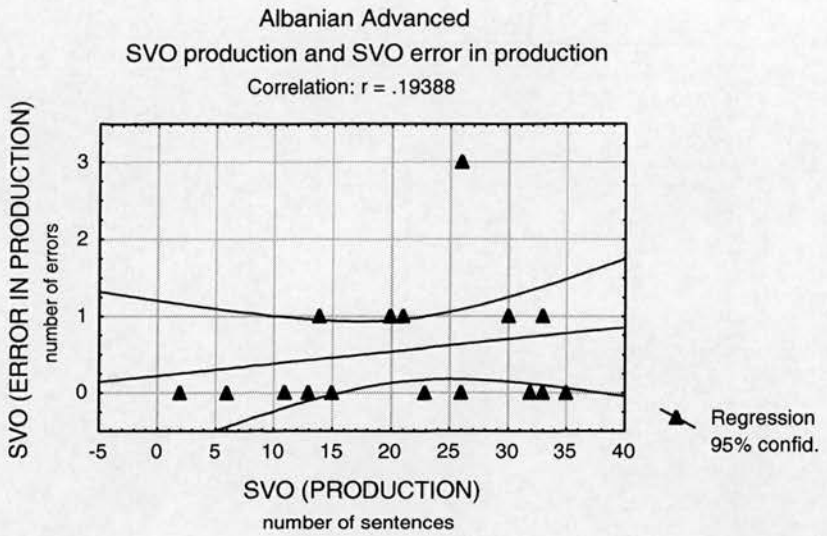


Figure 8.8: Albanian advanced: correlation between SVO production and SVO errors in production.

8.2.4. English elementary speakers

In Table 8.3 we summarize individuals' performance during the three tasks, regarding VSO. Again, starting from the comprehension experiment, we can identify three sub-groups of EeG speakers, similar to those identified in the previous group, based on the interpretation of the V-initial utterances. However, in this group, variability is less apparent than in the previous groups of L2 learners:

- the S-first group consists of 11 speakers: 6 of them interpreted all V-initial ambiguous utterances as VSO (ADR, AKE, BRI, LHO, MMC, VKA: 100% of VSO

interpretation) and 5 of them interpreted such utterances as VSO 75% of the times (BCK, EFR, FMM, JMI, MOR).

- the VO group consists of 3 speakers: two of them chose an VOS interpretation 25% of the time (CMO, NPI) and one of them interpreted all ambiguous utterances as VOS (DRO: 0% of VSO).

- the no-preference group consists of 4 speakers (CCA, CWI, DFO, RRA) who interpreted half utterances as VOS and half as VSO.

As in the two Albanian groups, the errors in the interpretation of unambiguous VSO utterances do not correlate with the strategy used for the interpretation of ambiguous V-initial utterances, an indication that the interpretation strategies do not always override morphological marking (cf. Chapter 5).

	VSO in comprehension			VSO in production		VSO in MELA	
	VSO interpretation	errors	RTs	n of sentences	errors	judgments	RTs
ADR	100	2	8.06	0	0	2.4	0.1
AKE	100	2	7.76	0	0	4.43	0.97
BCK	75	3	8.12	3	1	3.58	0.83
BRI	100	0	8.53	0	0	3.86	1.26
CCA	50	2	8.68	0	0	3.9	0.34
CMO	25	8	8.08	0	0	4.37	0.2
CWI	50	6	8.21	0	0	3.47	1.44
DFO	50	2	8.31	0	0	2.42	0.97
DRO	0	2	7.88	2	1	3.14	1.02
EFR	75	5	8.22	0	0	1.94	1.39
FMM	75	1	8.5	0	0	4.42	1.28
JMI	75	0	8.02	1	0	3.37	0.73
LHO	100	3	8.15	0	0	3.99	0.74
MMC	100	2	8.49	0	0	2.48	-0.55
MOR	75	5	8.16	0	0	4.27	0.07
NPI	25	3	7.9	0	0	4.32	0.75
RRA	50	0	8.25	0	0	2.32	-0.17
VKA	100	0	8.58	0	0	4.1	0.96

Table 8.3: English elementary speakers' performance in the three tasks (Comprehension, Production and Judgment) regarding VSO.

Conversely, EeG speakers who used more VSO during production, were more likely to case-mark NPs in an non-nativelike way ($r = .939$, $p < .05$). The same correlation was significant in the AaG group, which provides some additional evidence to the hypothesis that VSO might be avoided because it is more difficult to result in accurate use of case markers (cf. section 6.2.6.4).

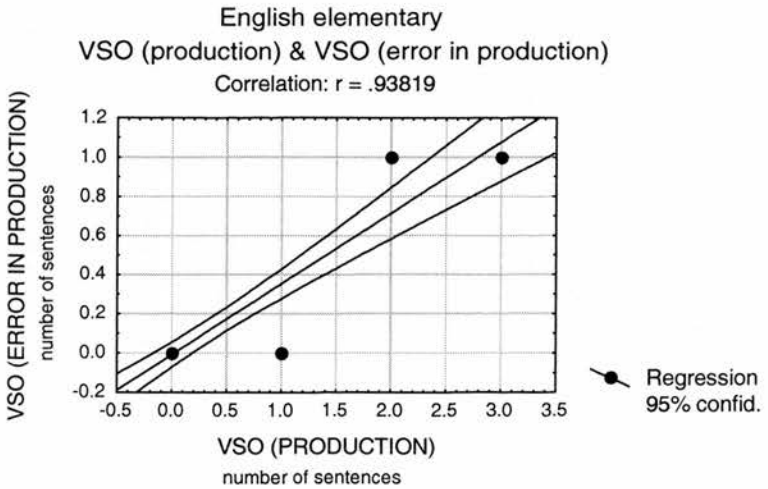


Figure 8.9: English elementary: correlation between VSO in production and VSO errors in production.

Since no other correlations were found to be significant, we can conclude that WO preferences during comprehension and production do not directly influence EeG speakers' judgments.

8.2.5. English advanced

In Table 8.5 we summarize the performance of each EaG speaker in the three tasks.

	VSO in comprehension			VSO in production		VSO in MELA	
	VSO interpretation	errors	RTs	n of sentences	errors	judgments	RTs
AFE	0	1	8.13	2	0	4.13	8.55
CMA	0	4	8.02	0	0	1.84	8.52
CNH	0	2	8.27	8	0	3.73	8.85
DPA	25	2	8.13	3	0	4.34	9.14
FNA	100	0	7.71	2	0	3	8.55
IAT	25	5	7.81	0	0	3.68	9.11
JFL	25	3	8.01	1	0	4.43	9
JSL	75	1	8.23	3	1	4.27	8.21
JSH	0	2	8.25	1	0	4.45	8.54
JWH	25	1	7.95	0	0	3.94	8.66
KFL	25	2	8.12	2	0	2.01	9.32
KGO	0	0	7.7	3	0	3.4	8.72
KWI	0	7	7.76	0	0	2.72	8.76
MOE	0	3	8.07	0	0	3.22	8.85
MWI	50	1	8.3	1	0	4.6	8.18
SBK	50	1	8.05	1	0	3.71	8.25
SDA	25	5	8.8	3	0	4.15	8.89
WHA	0	0	8.18	3	0	4.5	8.68

Table 8.5: English advanced speakers' performance in the three tasks (Comprehension, Production and Judgment) regarding VSO.

Similarly to the previous L2 groups, there are three sub-groups that can be identified in terms of the interpretation strategies deployed by EaG speakers; contrary to the previous groups, however, the S-first group consists only of two speakers, one who interpreted all V-initial ambiguous utterances as VSO (FNA) and one who interpreted the majority of such utterances as VSO (JSH = 75% VSO). The VO group consists of 14 speakers, who either interpreted all ambiguous utterances as VOS (AFE, CMA, CNH, JSL, KGO, KWI, MOE, WHA) or the majority of them (DPA, IAT, JFL, JWH, KFL, SDA: 25% VSO interpretation). Finally, there were only two speakers (MWI, SBK) who did not seem to have a clear interpretation strategy.

It is obvious that there is less variability in the performance of the EaG speakers with respect to the use of strategies than in the other L2 groups. Especially if we compare the two English groups, elementary and advanced, it is clear that there is a radical change in performance: the majority of the elementary speakers preferred the S-first strategy (n =11) whereas the majority of the advanced speakers preferred the VO strategy (n = 14). Such difference was not found in the two Albanian groups, which are, as already mentioned, nearly identical with respect to the S-first preference.

Moreover, in the EaG group, no significant correlations were found, which could mean, first of all, that WO preferences and morphological accuracy in one task do not relate to the performance in a different task. Again, we can also conclude that speakers might accept patterns that they do not produce, since the judgments of the five EaG speakers who never used a VSO utterance (i.e. CMA, IAT, JWH, KWI, MOE) do not differ from the judgments of the speakers who used some VSO utterances during their production. Moreover, the preference for a certain type of interpretation strategy does not correlate with the use of a certain WO in production.

A final note with respect to the EaG group has to do with the assumption about a next developmental stage, where interpretation strategies and RTs are more nativelike: FNA preferred a VSO interpretation all the time, his RTs were not significantly different from native speakers' either, and he had no erroneous interpretations in VSO (or in VOS) utterances during comprehension. Moreover, his performance was also nativelike during acceptability judgments, with respect to both variables. He also produced some VSO sentences that were marked in a nativelike way. Thus, we could assume that there might be more English speakers of Greek with a comparable performance to FNA's and that nativelike performance is not impossible, even when the two languages (L1 and L2) are not alike.

8.3. Summary and conclusions

The synthesis of the three experiments has shown that the L1 effect is manifested in different ways and might result from different reasons, depending on the task that the L2 speakers are asked to perform: Albanian and English speakers, at the elementary or the advanced level, might have a nativelike performance in one task but not in the other(s). The conclusion we could draw is that hypotheses about the role of the L1 during L2 development should not be general and irrespective of context (i.e. the task the L2 speakers are performing each time) or the characteristics of the languages in contact.

Based on this set of data, we can claim that the L1 affects the L2 performance more directly during production and comprehension than during acceptability judgment, and that L2 speakers seem to deploy L2 strategies differently in comprehension and in production. The same strategies are not always affecting the task of judging L2 sentences, since it was only in the case of Albanian speakers that that VSO RTs in MELA task correlated with VSO interpretation (AaG speakers) or with VSO production (AeG speakers).

A further conclusion could be that the perceived similarity between the L1 and the L2 affects L2 performance in a rather complicated way, and not as straightforwardly as previously assumed (cf. Odlin 1989:156). For example, the similarity between Albanian and Greek does not allow speakers to have clear preferences during comprehension and competing strategies result in the difference between Albanian speakers (both elementary and advanced) and native controls. Additionally, Greek and Albanian speakers also differ in terms of VSO production, and AaG speakers seem to avoid this order due to morphological factors. Moreover, the fact that VSO errors in production correlate with VSO frequency in production, both in EeG and AaG groups, could be an indication that for certain groups of L2 speakers VSO is avoided in order to achieve a more accurate production in terms of morphological accuracy (cf. section 6.2.6.4). Thus, the apparent similarity between the L1 and the L2 does not always have either a 'clear' or a 'positive' effect; in fact, quite often the opposite might be true, i.e., apparent dissimilarity might have a 'positive' influence on learners' performance: English speakers do not differ from Greeks in terms of WO judgments, and EeG speakers also deploy the same interpretation strategies to Greeks.

Chapter 9

Conclusions and directions for further research

In this thesis we investigated the L1-in-L2 issue. Our aim was to draw the complete picture of L2 performance by collecting different kinds of data, in order to gain a better understanding of L1 transfer. The assumption behind our methodological proposal was that processing factors might affect L2 performance and obscure our understanding about L2 competence. By comparing data from different tasks we arrived at more specific conclusions about L1 transfer during comprehension, production and acceptability judgments, and at the more general conclusion that L1 transfer is a conditional phenomenon, which occurs when the L2 data seem to verify learners' hypothesis about the similarity between the two language systems, but also in certain situations and in order for certain difficulties to be overcome.

9.1. Main points of the thesis

In Chapter 5, where we presented the comprehension experiment, we provided evidence that L2 speakers of Greek do not always use L1 processing strategies for the interpretation of certain types of utterances, namely V-initial ambiguous utterances. More specifically, we argued that when the L1 and the L2 are similar and different kinds of strategies are possible, the S-first and VO interpretation are more likely to compete, as in the case of Albanian elementary and advanced speakers of Greek. EeG speakers, on the contrary, who might assume that the L1 strategy (i.e. VO) is not useful in the (different) L2 setting, were more nativelike in their performance with respect to their comprehension strategy. The fact that EaG learners fall back to the VO strategy was a surprising finding, and we assumed that EaG speakers deploy it during L2 processing possibly because the overgeneralization of the S-first strategy made it less helpful than a strategy should be (errors in VOS by EeG speakers).

The conclusion that follows is that L1 comprehension strategies are not always transferred during L2 processing but they might be used as a means of dealing with L2

input and with specific problems that previous strategies have created. A further, equally interesting conclusion is that L1 transfer at the processing level is not a 'privilege' of the less advanced levels of L2 proficiency: contrary to hypotheses that claimed that L1 influence is more apparent at the beginning of L2 development (c.f., e.g., Fathman & LoCoco 1989: 167; see also Chapter 2), we found that for certain aspects of L2 performance this is far from being true. More specifically, and with respect to the interpretation strategies, elementary learners seem to be closer to the target performance than advanced speakers, especially when the L1 and the L2 are perceived as different systems.

In Chapter 6, we argued that the difference between native and non-native production could also be attributed to processing strategies, since Albanian speakers' performance could not be explained on the basis of L1 influence alone: Albanian is a 'free-WO' language but Albanian speakers produced VSO utterances significantly less frequently than native speakers of Greek, and did not differ from English speakers of Greek in term of SVO use. On the other hand, English speakers' performance seems to be more affected by the L1 properties, since they produced significantly more SVO utterances than Greek speakers. Among the possible reasons for the more general preference for SVO utterances in L2 speech, which remained unaffected by task manipulations, we mentioned the facilitating role that SVO order might have during production (with relation to the case marking of the Subject and Object NPs). We argued that the L1 has an effect on the extend and the strength with which a certain strategy might be used; we assumed that both groups of learners use specific IL production strategies (see section 6.2.6.4) that result in the SVO preference found in the data, but the L1 setting can make such strategies, and as a consequence WO preferences too, more (e.g. English) or less (e.g. Albanian) applicable.

Another unexpected and important finding was that native speakers of Greek seem to follow a more 'lexically-driven' process of speech production, as they showed a preference to produce certain non-SVO patterns with certain verbs; conversely, L2 speakers' SVO-preference was unaffected by lexical factors and this could be the major difference between native and non-native production.

The finding that overall English speakers are not only using morphological markers to encode and decode grammatical relations but are also highly accurate like Albanian speakers, even at the elementary level and during both tasks (i.e. encoding/ producing

and decoding/interpreting grammatical relations by means of morphology), indicate that L2 learners with an inflected L1 do not have a more accurate performance than L2 speakers whose L1 does not have overt case marking on articles and nouns.

A further conclusion that can be drawn and relates to the morphology-syntax interface is that morphological accuracy is not a pre-requisite for WO flexibility during production, since 'accurate' speakers are not always native-like in their production of non-SVO utterances, while there were some speakers who produced non-SVO utterances in spite of the fact that they were highly inaccurate with respect to the use of morphological markers. However, the fact that EeG and AaG speakers who produced more VSO sentences were more likely to make more morphological errors (see Chapter 8) provides additional support to the hypothesis that certain orders are avoided because they are more difficult than others, and an indication that morphology and WO interact, the result being specific preferences during production.

In Chapter 7 we argued that the fact that all L2 speakers had nativelike WO preferences could be taken as an indication that the L1 structure does not directly affect L2 judgments, at least not always, and definitely not with respect to the WO phenomenon we investigated. The only difference we found in this experiment had to do with RTs: like in the comprehension experiment, L2 speakers needed more time to respond to L2 stimuli than native speakers: advanced speakers, although faster than the elementary, were still significantly slower than natives. This difference could also be due to processing difficulties that L2 speakers have. We have assumed, for example, that the identification of Subjects and Objects by means of morphology and the verification that the correct markers have been used in the experimental sentences, is a more demanding task for L2 speakers than it is for natives (see Chapters 5 and 7 for a discussion). Moreover, the fact that RTs for VSO during MELA correlate with VSO production (AeG) and VSO interpretation (AaG; Chapter 8) could indicate not only that RTs are longer due to less automatized process of the identification and the production of a certain structure, but also that certain orders might be avoided because of this lack of automatization. Moreover, we also found that AeG speakers who never produced VSO sentences tended to accept VSO sentences more than speakers who used some VSO utterances in their production. This finding could be an indication that production data are not always as representative of L2 speakers' WO repertoire as judgments data.

In Chapter 8, where we also looked at individual speakers' performance, we found that performance in one task rarely correlates with performance in another task: L2 speakers might never produce sentences that they accept, and their judgments are not directly influenced by their interpretation strategies. Moreover, the perceived similarity between the L1 and the L2 might result in a less nativelike performance than initially assumed, since L2 speakers find it difficult to 'choose' between competing strategies.

Regarding the research hypotheses, we concluded that L1 transfer is a 'conditional' phenomenon, which depends on the characteristics of the two languages, the level of L2 proficiency and the task that L2 speakers are performing each time.

9.2. Future research

Throughout the thesis, several questions were raised and several speculations were made in order for some performance patterns to be explained. This was more than expected, since this study was meant to serve as a basis for further research, a proposal than a solution and a starting point rather than an end.

The first question that needs to be answered is whether similar patterns of L1 effects could be found for other WO phenomena; we have been cautious enough to state constantly that the conclusions drawn in this thesis had to do with the WO phenomenon under investigation. There are many other areas that should be investigated in the proposed interdisciplinary approach, and future studies that will encompass the three aspects of performance would shed more light on the L1-in-L2 issue and L2 development in general.

But apart from other phenomena, specific follow up studies are required: starting from L2 processing, now that we have some evidence that L2 speakers interpret V-initial ambiguous utterances by means of specific strategies, we also need to see whether the same strategies are used for V-final utterances too. This would allow for more general conclusions about transfer of L1 processing strategies. In this research, in order to keep the load of the experiments as small as possible, we decided not to include all WO patters in the comprehension experiment. Some additional experiments, which will also include V-final ambiguous and unambiguous utterances, as well as OVS unambiguous utterances, could provide stronger evidence to the claim that transfer of L1 processing strategies occurs in specific but not all situations, when certain conditions are met.

It would also be interesting to try and find some other ways to prime non-SVO utterances in L2 production, especially in the case of elementary speakers, who appeared to be more rigid in their performance than advanced speakers. A further question is whether L2 speakers know in which contexts to use such patterns. For the latter case, an acceptability judgment test where sentences will not be out of context would also be more appropriate.

With respect to the L2 developmental stages, it has been made clear that the aim of this thesis was not to investigate the initial stage of L2 acquisition. Nevertheless, further research with real beginners is required in order to have some more definite answers with respect to L1 influence of abstract features: contrary to our hypotheses, we have found that Albanian and English groups do not differ in terms of morphological accuracy, neither during the production nor during the comprehension experiment. By investigating L2 performance at a more initial stage, we will be able to see whether the L2 performance is –at all stages- unaffected by the characteristics of the L1 features.

Additionally, after the unexpected findings about the difference in the use of interpretation strategies between English elementary and English advanced speakers, it becomes a challenge of future research to find possible ways to investigate whether English speakers at a previous developmental stage transfer their L1 (VO) strategy, or whether they start with a S-first strategy. This difference in performance of the two English groups was one of the reasons that lead to the exploration of within-group performance, and this way it also raised the issue of ultimate attainment, about which we have made a specific hypothesis in this thesis: while looking at individual speakers' performance, we identified an English advanced speaker who performed in a nativelike way in all tasks and with respect to all variables; we assumed that there might be a next developmental stage, which could be called the 'near-native level', and that L2 speakers belonging to that level might use L1 strategies and have a nativelike command of their morphological knowledge. Further research is required with 'near-native' L2 speakers in order to verify these assumptions, which if proved to be true, could provide further evidence against L2 acquisition models that argue for a global or local breakdown in IL grammars (see White 2003 for discussion and references).

9.3. Conclusion

The time has come to move to more interdisciplinary approaches and exploit all possible sources available in order to draw the complete picture of L2 development. This would allow us to gain a better understanding of the phenomenon of L1 transfer, which was the focus of investigation of this thesis. The research reported here has shown that the L1 effect is manifested in different ways during comprehension, production, and acceptability judgments. Our findings allow us to assume that L2 speakers transfer their L1 properties and strategies under specific conditions, in relation to the two languages in contacts (native and target) and the task in hand. They also show that the L1 influences the applicability of IL strategies, but it might leave unaffected L2 intuitions. These results are relevant to theories of L2 processing as well as to L2 acquisition models, which have made specific claims about the role of the L1 and the course of L2 development.

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APPENDICES

APPENDIX I:

QUESTIONNAIRES &
PRE-TESTS FOR L2 LEVEL OF PROFICIENCY

1. Questionnaire for the Greek native group

ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ

ΟΝΟΜΑ: Γιάννης Βλαχογιάννης

ΗΛΙΚΙΑ: 21

ΔΙΕΥΘΥΝΣΗ: ΔΡΙΣΚΟΥ 5

ΤΗΛΕΦΩΝΟ: 2028167

ΕΠΑΓΓΕΛΜΑ: Προγραμματιστής - Φοιτητής

ΧΩΡΑ ΓΕΝΝΗΣΗΣ: Ελλάδα

ΧΩΡΑ ΔΙΑΜΟΝΗΣ ΤΟΝ ΤΕΛΕΥΤΑΙΟ ΧΡΟΝΟ: Ελλάδα

ΧΩΡΑ/ΧΩΡΕΣ ΣΤΙΣ ΟΠΟΙΕΣ ΕΧΕΤΕ ΔΙΑΜΕΙΝΕΙ (παρακαλώ σημειώστε και την περίοδο διαμονής): ΚΥΠΡΟΣ - ΚΑΛΟΚΑΙΡΙ 1998

ΠΟΙΕΣ ΞΕΝΕΣ ΓΛΩΣΣΕΣ ΜΙΛΑΤΕ; (παρακαλώ σημειώστε και το επίπεδό σας, π.χ. 'πολύ καλά', 'μέτρια', 'άριστα', 'ελάχιστα') ΑΓΓΛΙΚΑ - ΠΟΛΥ ΚΑΛΑ

ΓΑΛΛΙΚΑ - ΕΛΑΧΙΣΤΑ

ΠΟΙΕΣ ΑΛΛΕΣ ΓΛΩΣΣΕΣ ΚΑΤΑΛΑΒΑΙΝΕΤΕ; (αν είναι διαφορετικές από τις παραπάνω. Παρακαλώ σημειώστε και το επίπεδό σας, π.χ. 'πολύ καλά', 'μέτρια', 'άριστα', 'ελάχιστα'...)

ΠΟΥ/ΠΩΣ ΜΑΘΑΤΕ ΤΙΣ ΓΛΩΣΣΕΣ ΠΟΥ ΜΙΛΑΤΕ; Φροντιστήριο

ΣΕ ΠΟΙΑ ΧΩΡΑ/ ΠΟΙΕΣ ΧΩΡΕΣ ΠΗΓΑΤΕ **ΣΧΟΛΕΙΟ** (Δημοτικό, Γυμνάσιο Λύκειο);

Ελλάδα

ΣΠΟΥΔΑΖΕΤΕ ΣΤΗΝ ΕΛΛΑΔΑ; ΝΑΙ

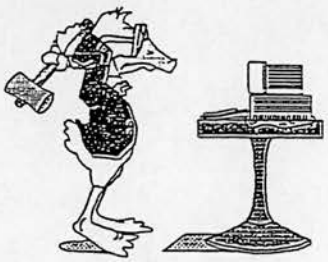
ΑΝ ΝΑΙ, ΣΕ ΠΟΙΑ ΣΧΟΛΗ; Τ.Ε.Ι Πειραιά - Υπολογιστικά Συστήματα

ΕΧΕΤΕ ΣΠΟΥΔΑΣΕΙ ΣΕ ΑΛΛΕΣ ΧΩΡΕΣ; ΟΧΙ

ΑΝ ΝΑΙ, ΣΕ ΠΟΙΑ/ ΠΟΙΕΣ;

ΠΟΣΟΝ ΚΑΙΡΟ;

ΤΙ;



ΞΕΡΕΤΕ ΝΑ ΧΡΗΣΙΜΟΠΟΙΕΙΤΕ **ΗΛΕΚΤΡΟΝΙΚΟΥΣ ΥΠΟΛΟΓΙΣΤΕΣ;** (παρακαλώ κυκλώστε αυτό που ταιριάζει στην περίπτωσή σας) :

- όχι, καθόλου
- ναι, λίγο
- ναι, αρκετά καλά
- (•) ναι, πολύ καλά

ΕΧΕΤΕ ΦΙΛΟΥΣ/ ΦΙΛΕΣ ΑΛΛΟΔΑΠΟΥΣ/ ΑΛΛΟΔΑΠΕΣ; ΟΧΙ

ΑΝ ΝΑΙ, ΑΠΟ ΠΟΙΑ ΧΩΡΑ/ ΠΟΙΕΣ ΧΩΡΕΣ ΕΙΝΑΙ ΟΙ ΦΙΛΟΙ/ ΦΙΛΕΣ ΣΑΣ; _____

_____

ΤΙ ΓΛΩΣΣΑ ΜΙΛΑΤΕ ΜΕ ΑΥΤΟΥΣ ΤΟΥΣ ΦΙΛΟΥΣ/ ΑΥΤΕΣ ΤΙΣ ΦΙΛΕΣ ΣΑΣ;

_____

ΕΧΕΤΕ ΔΕΣΜΟ ΜΕ ΑΛΛΟΔΑΠΟ / ΑΛΛΟΔΑΠΗ; ΟΧΙ

ΑΝ ΝΑΙ, ΑΠΟ ΠΟΙΑ ΧΩΡΑ ΕΙΝΑΙ Ο/Η ΣΥΝΤΡΟΦΟΣ ΣΑΣ; _____

ΠΟΣΟΝ ΚΑΙΡΟ ΕΙΣΤΕ ΜΑΖΙ; _____

ΤΙ ΓΛΩΣΣΑ ΜΙΛΑΤΕ ΜΕ ΤΟΝ/ ΤΗΝ ΣΥΝΤΡΟΦΟ ΣΑΣ; _____

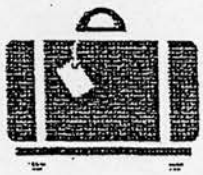
ΕΙΣΤΕ ΠΑΝΤΡΕΜΕΝΟΣ/ ΠΑΝΤΡΕΜΕΝΗ ΜΕ ΑΛΛΟΔΑΠΟ/ ΑΛΛΟΔΑΠΗ;

ΟΧΙ

ΑΝ ΝΑΙ, ΑΠΟ ΠΟΙΑ ΧΩΡΑ ΕΙΝΑΙ Ο/Η ΣΥΖΥΓΟΣ ΣΑΣ; _____

ΠΟΣΟΝ ΚΑΙΡΟ ΕΙΣΤΕ ΠΑΝΤΡΕΜΕΝΟΙ; _____

ΤΙ ΓΛΩΣΣΑ ΜΙΛΑΤΕ ΜΕ ΤΟΝ/ ΤΗΝ ΣΥΖΥΓΟ ΣΑΣ; _____



ΕΧΕΤΕ ΕΡΓΑΣΤΕΙ ΣΤΟ ΕΞΩΤΕΡΙΚΟ; ΟΧΙ

ΑΝ ΝΑΙ, ΣΕ ΠΟΙΑ ΧΩΡΑ/ ΠΟΛΗ ; _____

ΤΙ ΔΟΥΛΕΙΑ ΚΑΝΑΤΕ; _____

ΓΙΑ ΠΟΣΟΝ ΚΑΙΡΟ; _____

ΑΝ ΘΕΛΕΤΕ ΝΑ ΠΡΟΣΘΕΣΕΤΕ ΚΑΤΙ ΠΟΥ ΝΟΜΙΖΕΤΕ ΟΤΙ ΕΙΝΑΙ ΣΗΜΑΝΤΙΚΟ ΓΙΑ ΤΗΝ ΕΡΕΥΝΑ ΜΟΥ, ΠΑΡΑΚΑΛΩ ΣΗΜΕΙΩΣΤΕ ΤΟ ΕΔΩ:

Σας ευχαριστώ πολύ
για τον χρόνο σας και
την πολύτιμη βοήθειά σας.

ΕΣΕΙΣ ΚΑΝΕΤΕ ΤΗΝ
ΕΡΕΥΝΑ ΜΟΥ ΔΥΝΑΤΗ!

2. Questionnaire for the L2 groups

ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ

ΟΝΟΜΑ: MILLIE WILLIAMS

ΗΛΙΚΙΑ: 26

ΔΙΕΥΘΥΝΣΗ: ΠΛΟΥΤΩΝΟΣ 8-10, ΔΑΦΝΗ

ΤΗΛΕΦΩΝΟ: 210 973 2259

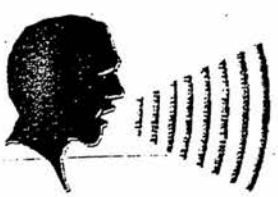
ΕΠΑΓΓΕΛΜΑ: ΚΑΘΗΓΗΤΡΙΑ ΑΓΓΛΙΚΩΝ

ΧΩΡΑ ΓΕΝΝΗΣΗΣ: Μ. ΒΡΕΤΑΝΝΙΑ

ΧΩΡΑ ΔΙΑΜΟΝΗΣ ΤΟΥΣ ΤΕΛΕΥΤΑΙΟΥΣ 3 ΜΗΝΕΣ: ΕΛΛΑΔΑ

ΧΩΡΑ ΔΙΑΜΟΝΗΣ ΤΟΝ ΤΕΛΕΥΤΑΙΟ ΧΡΟΝΟ: ΕΛΛΑΔΑ

ΧΩΡΑ/ΧΩΡΕΣ ΣΤΙΣ ΟΠΟΙΕΣ ΕΧΕΤΕ ΔΙΑΜΕΙΝΕΙ (παρακαλώ σημειώστε και την περίοδο διαμονής): ΙΤΑΛΙΑ (1998 ΣΧΟΛΙΚΟ ΕΤΟΣ) ΓΑΛΛΙΑ (1998, 3 ΜΗΝΕΣ ΤΟ ΚΑΛΟΚΑΙΡΙ)



ΠΟΙΑ ΕΙΝΑΙ Η ΜΗΤΡΙΚΗ ΣΑΣ **ΓΛΩΣΣΑ**; ~~ΑΓ~~ ΑΓΓΛΙΚΑ

ΠΟΙΕΣ ΑΛΛΕΣ ΓΛΩΣΣΕΣ ΜΙΛΑΤΕ; (παρακαλώ σημειώστε και το επίπεδό σας, π.χ. 'πολύ καλά', 'μέτρια', 'άριστα', 'ελάχιστα') ΙΤΑΛΙΚΑ, άριστα, ΓΑΛΛΙΚΑ, πολύ καλά, ΓΕΡΜΑΝΙΚΑ, αρχάρια

ΠΟΙΕΣ ΑΛΛΕΣ ΓΛΩΣΣΕΣ ΚΑΤΑΛΑΒΑΙΝΕΤΕ; (αν είναι διαφορετικές από τις παραπάνω.

Παρακαλώ σημειώστε και το επίπεδό σας, π.χ. 'πολύ καλά', 'μέτρια', 'άριστα', 'ελάχιστα'...)

ΙΣΠΑΝΙΚΑ, αρκετά καλά

ΠΟΥ/ΠΩΣ ΜΑΘΑΤΕ ΤΙΣ ΓΛΩΣΣΕΣ ΠΟΥ ΜΙΛΑΤΕ; ΙΤΑΛΙΚΑ, ΓΑΛΛΙΚΑ - μαθήματα στο σχολείο στη Βρεταννία, διάνομή στις χώρες. Γερμανικά - σχολείο στη Μ.Β.

ΣΕ ΠΟΙΑ ΧΩΡΑ/ ΠΟΙΕΣ ΧΩΡΕΣ ΠΗΓΑΤΕ **ΣΧΟΛΕΙΟ** (π.χ. Δημοτικό, Γυμνάσιο Λύκειο, άλλο); Όλα στην Μεγάλη Βρεταννία

ΠΟΤΕ ΚΑΙ ΠΟΥ ΤΕΛΕΙΩΣΑΤΕ ΤΟ ΣΧΟΛΕΙΟ; 1995, -ΘΥΑΛΛΙΑ

ΕΧΕΤΕ ΣΠΟΥΔΑΣΕΙ ΣΤΗΝ ΧΩΡΑ ΣΑΣ; ΝΑΙ

ΑΝ ΝΑΙ, ΤΙ; Ιταλική Φιλολογία

ΠΟΤΕ ΚΑΙ ΠΟΥ; 1995 - 99 MANCHESTER UNIVERSITY

ΕΧΕΤΕ ΣΠΟΥΔΑΣΕΙ ΣΕ ΑΛΛΕΣ ΧΩΡΕΣ; ΝΑΙ

ΑΝ ΝΑΙ, ΤΙ; γλωσσολογία

ΠΟΤΕ ΚΑΙ ΠΟΥ; 1998 ΠΑΝΕΠΙΣΤΗΜΙΟ ΤΗΣ ΠΙΖΑ, ΙΤΑΛΙΑ

ΣΠΟΥΔΑΖΕΤΕ ΣΤΗΝ ΕΛΛΑΔΑ; ΟΧΙ

ΑΝ ΝΑΙ, ΤΙ; _____

ΠΟΥ; _____

ΠΟΤΕ ΑΡΧΙΣΑΤΕ ΤΙΣ ΣΠΟΥΔΕΣ ΣΑΣ; _____

ΘΕΛΕΤΕ ΝΑ ΣΠΟΥΔΑΣΕΤΕ ΣΤΗΝ ΕΛΛΑΔΑ; ΝΑΙ

ΑΝ ΝΑΙ, ΤΙ ΚΑΙ ΠΟΥ; γλωσσολογία, Πανεπιστήμιο Αθηνών (μεταπτυχιακές σπουδές)

ΕΧΕΤΕ ΣΠΟΥΔΑΣΕΙ ΣΤΗΝ ΕΛΛΑΔΑ; _____

ΑΝ ΝΑΙ, ΤΙ; _____

ΠΟΤΕ ΚΑΙ ΠΟΥ; _____

ΞΕΡΕΤΕ ΝΑ ΧΡΗΣΙΜΟΠΟΙΕΙΤΕ **ΗΛΕΚΤΡΟΝΙΚΟΥΣ ΥΠΟΛΟΓΙΣΤΕΣ;** (παρακαλώ κυκλώστε αυτό που ταιριάζει στην περίπτωσή σας) :

- όχι, καθόλου
- ναι, λίγο
- (•) ναι, αρκετά καλά
- ναι, πολύ καλά

ΔΟΥΛΕΥΕΤΕ ΑΥΤΗ ΤΗΝ ΠΕΡΙΟΔΟ; ΟΧΙ

ΑΝ ΝΑΙ, ΠΟΥ; _____

ΠΟΣΟΝ ΚΑΙΡΟ ΕΙΣΤΕ ΣΕ ΑΥΤΗ ΤΗΝ ΔΟΥΛΕΙΑ; _____

ΜΕΧΡΙ ΠΟΤΕ ΘΑ ΔΟΥΛΕΥΕΤΕ ΕΚΕΙ; _____

ΕΧΕΤΕ ΔΟΥΛΕΨΕΙ ΠΟΤΕ ΣΤΗΝ ΕΛΛΑΔΑ; ΝΑΙ

ΑΝ ΝΑΙ, ΠΟΥ; Φροντιστήρια Ξένων γλωσσών, Ορεστιάδα

ΓΙΑ ΠΟΣΟΝ ΚΑΙΡΟ; 2 χρόνια, 5 μήνες

ΘΕΛΕΤΕ ΝΑ ΔΟΥΛΕΨΕΤΕ ΣΤΗΝ ΕΛΛΑΔΑ; ΝΑΙ

ΑΝ ΝΑΙ, ΠΟΥ/ ΩΣ ΤΙ; Μεταφράστρια

ΠΟΣΟΝ ΚΑΙΡΟ ΜΕΝΕΤΕ ΣΤΗΝ ΕΛΛΑΔΑ; 3 χρόνια

ΠΟΤΕ ΗΡΘΑΤΕ ΓΙΑ ΠΡΩΤΗ ΦΟΡΑ; Φεβρουάριο, 2000

ΠΟΣΟ ΣΥΧΝΑ ΕΡΧΟΣΑΣΤΑΝ ΣΤΟ ΠΑΡΕΛΘΟΝ ΣΤΗΝ ΕΛΛΑΔΑ; Ποτέ

ΣΕ ΠΟΙΑ ΠΟΛΗ/ ΠΟΙΕΣ ΠΟΛΕΙΣ;

ΓΙΑ ΠΟΣΟΝ ΚΑΙΡΟ;

ΕΧΕΤΕ ΜΕΝΕΙ ΣΕ ΑΛΛΕΣ ΠΟΛΕΙΣ ΤΗΣ ΕΛΛΑΔΑΣ; ΝΑΙ

ΑΝ ΝΑΙ, ΣΕ ΠΟΙΑ/ ΠΟΙΕΣ ΚΑΙ ΓΙΑ ΠΟΣΟΝ ΚΑΙΡΟ; Ορεστιάδα 2 χρόνια
Διδυμότειχο 5 μήνες

ΕΧΕΤΕ ΕΠΙΣΚΕΦΤΕΙ ΑΛΛΕΣ ΠΟΛΕΙΣ ΤΗΣ ΕΛΛΑΔΑΣ; ΝΑΙ

ΑΝ ΝΑΙ, ΠΟΙΑ/ ΠΟΙΕΣ; Αλεξανδρούπολη, Θεσ/νίκη, Ξάνθη, Κομοτινή,

ΠΟΤΕ ΚΑΙ ΓΙΑ ΠΟΣΟΝ ΚΑΙΡΟ; Λάρισα κ.ά. = 1-2 μέρες
κάθε πόλη

ΕΔΩ ΜΕΝΕΤΕ ΜΟΝΟΣ/ ΜΟΝΗ; ΟΧΙ

ΑΝ ΟΧΙ, ΜΕΝΕΤΕ ΜΕ ΕΛΛΗΝΕΣ; ΝΑΙ

ΑΝ ΝΑΙ, ΤΙ ΣΧΕΣΗ ΕΧΕΤΕ ΜΕ ΤΟ ΑΤΟΜΟ/ ΤΑ ΑΤΟΜΑ ΜΕ ΤΑ ΟΠΟΙΑ ΔΙΑΜΕΝΕΤΕ (π.χ. 'φιλική', 'οικογενειακή', 'συναισθηματική', άλλη)

ΕΙΣΤΕ **ΠΑΝΤΡΕΜΕΝΟΣ/ ΠΑΝΤΡΕΜΕΝΗ ΜΕ ΕΛΛΗΝΑ/ΕΛΛΗΝΙΔΑ;** ΟΧΙ.

ΑΝ ΝΑΙ, ΠΟΣΟΝ ΚΑΙΡΟ; _____

ΤΙ ΓΛΩΣΣΑ ΜΙΛΑΤΕ ΜΕ ΤΟΝ /ΤΗΝ ΣΥΖΥΓΟ ΣΑΣ; _____

ΕΙΝΑΙ ΚΑΠΟΙΟ ΜΕΛΟΣ ΤΗΣ ΟΙΚΟΓΕΝΕΙΑΣ ΣΑΣ ΠΑΝΤΡΕΜΕΝΟ ΜΕ ΕΛΛΗΝΑ/ ΕΛΛΗΝΙΔΑ; ΟΧΙ

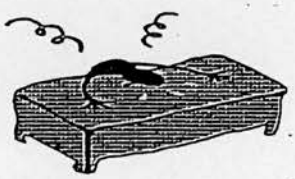
ΑΝ ΝΑΙ, ΠΟΙΟ; _____

ΠΟΣΟΝ ΚΑΙΡΟ; _____

ΕΙΧΑΤΕ ΠΟΤΕ ΣΤΕΝΗ ΣΧΕΣΗ ΜΕ ΕΛΛΗΝΑ/ ΕΛΛΗΝΙΔΑ; _____

ΑΝ ΝΑΙ, ΠΟΤΕ; Έχω τώρα

ΤΙ ΓΛΩΣΣΑ ΜΙΛΟΥΣΑΤΕ ΜΕΤΑΞΥ ΣΑΣ; Ελληνικά, αγγλικά



ΠΟΤΕ ΑΡΧΙΣΑΤΕ ΝΑ ΜΑΘΑΙΝΕΤΕ ΕΛΛΗΝΙΚΑ; Πριν 3 χρόνια

ΠΟΥ; / ΜΕ ΠΟΙΟΝ; Στο σπίτι, στην Ορεσιάδα, μόνη μου

ΤΩΡΑ ΚΑΝΕΤΕ ΜΑΘΗΜΑΤΑ; Ναι

ΑΝ ΝΑΙ, ΠΟΥ; Στο Πανεπιστήμιο Αθηνών

ΠΟΣΕΣ ΩΡΕΣ/ ΜΕΡΕΣ ΤΗΝ ΕΒΔΟΜΑΔΑ; 4 μέρες 14 ώρες

ΧΡΗΣΙΜΟΠΟΙΕΙΤΕ ΚΑΠΟΙΟ ΒΙΒΛΙΟ; Πλουτίζω τα Ελληνικά μου Γ

ΑΝ ΝΑΙ, ΠΟΙΟ; Ελληνικά για Προχωρημένους

ΕΧΕΤΕ ΚΑΝΕΙ ΣΤΟ ΠΑΡΕΛΘΟΝ ΜΑΘΗΜΑ ΣΕ ΤΑΞΗ; ΟΧΙ

ΑΝ ΝΑΙ, ΠΟΤΕ; _____

ΠΟΥ; _____

ΜΕ ΠΟΙΟ ΒΙΒΛΙΟ/ ΠΟΙΑ ΒΙΒΛΙΑ; _____

ΧΡΗΣΙΜΟΠΟΙΗΣΑΤΕ ΠΟΤΕ ΚΑΠΟΙΟ **ΒΙΒΛΙΟ**; _____

ΑΝ ΝΑΙ, ΠΟΙΟ/ ΠΟΙΑ; _____

ΓΙΑΤΙ ΜΑΘΑΤΕ /ΜΑΘΑΙΝΕΤΕ ΕΛΛΗΝΙΚΑ; Για ευχαρίστηση. Μ'αρέσουν οι γλώσσες και θα ήθελα να τις μάθω όλες!

ΑΝ ΘΕΛΕΤΕ ΝΑ ΠΡΟΣΘΕΣΕΤΕ ΚΑΤΙ ΠΟΥ ΝΟΜΙΖΕΤΕ ΟΤΙ ΕΙΝΑΙ ΣΗΜΑΝΤΙΚΟ ΓΙΑ ΤΗΝ ΕΡΕΥΝΑ ΜΟΥ, ΠΑΡΑΚΑΛΩ ΣΗΜΕΙΩΣΤΕ ΤΟ ΕΔΩ:

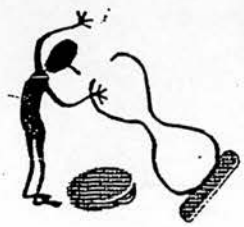
_____

_____

_____

_____

_____



Σας ευχαριστώ πολύ
για τον χρόνο σας και
την πολύτιμη βοήθειά σας.

<u>ΕΣΕΙΣ</u> ΚΑΝΕΤΕ ΤΗΝ
ΕΡΕΥΝΑ ΜΟΥ ΔΥΝΑΤΗ!

3. Level pre-test: Elementary group

ONOMA: Nicki

1. Βρείτε τα αντίθετα:

1. πάνω	α. έξω (2)
2. μέσα	β. αριστερά (7)
3. μπροστά	γ. λεπτός (4)
4. χοντρός	δ. κάτω (1)
5. χαρούμενος	στ. μακριά (6)
6. κοντά	ε. μικρός (8)
7. δεξιά	ζ. πίσω (3)
8. μεγάλος	η. λυπημένος (5)

7/7

2. Τι σημαίνουν οι λέξεις; (εξηγήστε στα <u>ελληνικά</u>, στα <u>αγγλικά</u>, ή στα <u>αλβανικά</u>)

1. έχω : *κάτι είναι δικό μου. ή κρατάω κάτι*
2. στέκομαι :
3. τραβάω :
4. γιατρός : doctor
5. βρίσκομαι : find ×
6. ακουμπάω : listen ×
7. ταχυδρόμος : post office / man
8. μιλάω : speak
9. μάγειρας : cook
10. νοσοκόμα: nurse
11. χαιρετάω : greet
12. κορίτσι: girl
13. κλωτσάω :
14. κυνηγάω : travel ×

7/13

4. Level pre-test for the advanced group

ΟΝΟΜΑ: Ζαναΐυτα Χαΐτα

- **Συμπληρώστε τα κενά**

Μαθητές: οι πιο σκληρά εργαζόμενοι Έλληνες!

Κάποτε σε αυτή την χώρα τα παιδιά μεγάλωναν με ασφάλεια και χαρά. ΜΠΟΡΟΥΣΑΝ (μπορώ) να επιστρέψουν από το σχολείο, να πετάξουν την τσάντα στην αυλή και να τρέξουν στη διπλανη (διπλανός) μονοκατοικία για ζωηρό παιχνίδι, ώσπου η φωνή του μανάδου (μαμά) τους θα έριχνε το σύνθημα: 'το φαγητό είναι έτοιμο!'

Αυτή ήταν η εποχή που έβγαλε μεγαλους επιστημονες (μεγάλος επιστήμονας) και αξιολογους καλλιτεχνες (αξιόλογος, καλλιτέχνης) και γενικά παιδιά γεμάτα ονειρα (όνειρο) και φιλοδοξια (φιλοδοξία).

Σήμερα το σκηνικό έχει αλλάξει. Στις _____ _____ (θορυβώδης, μεγαλούπολη) τα παιδιά επιστρέφουν τρεχοντας (τρέχω), για να μπουν (μπαίνω) πάλι γρήγορα στο ασανσέρ της πολυκατοικίας και να καταληγουν (καταλήγω) σε ένα επίσης βιαστικά προετοιμασμένο γεύμα, πριν αρχιζουν (αρχίζω) τις σχολικές τους δραστηριότητες.

Ώρες δουλειάς: 10 το πρωί με 12 το βράδυ!!!

APPENDIX II:

COMPREHENSION EXPERIMENT

1. Materials

Verbs

1. aghapai 'loves'
2. akui 'listens'
3. dhihni 'points'
4. klotsai 'kicks'
5. kitazi 'looks'
6. kinighai 'chases' (2): MF & MM
7. maloni 'scolds' (2): FN & NN
8. travai 'pulls' (2): FN & NN
9. heretai 'waves' (2): MN & FN

V+ Masculine + Feminine

aghapai – adras- ghineka (loves –man – woman)
kitazi – dhaskalos – mathitria (looks – teacher- woman. student)
kinighai – skilos- kota (chases – dog – chicken)
aghapai – kirios – kiria (loves – sir – madam)
kitazi – kathighitis –kopela (looks – teacher – young.girl)
kinighai – anthropos – ghata (chases – man – cat)

V+ Masculine + Masculine

kitazii – anthropos – karharias (looks – man- shark)
kinighai – kleftis – skilos (chases – thief – dog)
akui – kathighitis – mathitis (listens – teacher – student)
kitazi – adras – vatrahos (looks – man – frog)
kinighai – papus – kokoras (chases – grandfather – rooster)
akui – pateras – ghios (listens – father – son)

V+ Masculine + Neuter

aghapai –vatrahos – koritsi (loves – frog – girl)
dhihni – dhaskalos – aghori (points – teacher – boy)
heretai – kleftis – pedhi (waves – thief – child)
aghapai – karharias – psari (loves – shark – fish)
dhihni – mathitis – pontiki (points – student- mouse)
heretai – kirios – moro (waves – sir – baby)

V+ Feminine + Neuter

dhihni – nosokoma – palikari (points – nurse – young.man)
maloni – mitera – moro (scolds – mother – baby)
travai – kiria – ghaidhuri (pulls – lady – donkey)
dhihni – ghineka – liontari (points – woman – lion)
maloni – arkudha – psari (scolds – bear- fish)
travai – ghiaghia – liodari (pulls – grandmother – lion)

V+ Feminine + Feminine

akui - kota - ghata (listens - chicken - cat)
heretai - arkudha - mathitria (waves - bear - student)
kloltsai - maghirissa - nossokoma (kicks - cook- nurse)
akui - nifi - pethera (listens - daughter.in.law - mother.in.law)
heretai - ghiaghia - kopela (waves - grandmother- young girl)
klotsai - mitera - kori (kicks - mother- daughter)

V+ Neuter + Neuter

travai - aghori - koritsi (pulls - boy - girl)
maloni - puli - zoo (scolds - bird - animal)
klotsai - pedhi - ghuruni (kicks - child - pig)
travai - palikari - alogho (pulls - young.man - horse)
maloni - podiki - ghaidhuri (scolds – mouse - donkey)
klotsai - provato - liodari (kicks - sheep- lion)

2. Pre-tests

Table 1: Numbers of sentences with each verb produced by native speakers of Greek (n= 18)

	used as:					
Verb	transitive (+NP)	transitive (+FR)	transitive (pro-drop)	transitive (CP)	intransitive (-NP)	*total*
αγαπάει loves	11	0	5	0	2	*18*
ακούει listens	15	0	3	0	0	*18*
δείχνει shows	11	1	3	1	2	*18*
κλωτσάει kicks	12	0	2	0	4	*18*
μαλώνει scolds	12	2	3	0	1	*18*
κοιτάζει looks	12	0	3	0	3	*18*
κυνηγάει chases	13	1	1	0	3	*18*
τραβάει pulls	16	0	1	0	1	*18*
χαιρετάει greets	12	0	5	0	1	*18*
total n	114	4	26	1	17	***162***

[FR= free relative; pro = pronoun; CP= na-clause, oti-clause]

Table 2: Number of times that each noun was preferred to be the Subject of the verb.

Verb	noun		Subject	%
κλωτσάει kick	*πρόβατο*	sheep	14	78%
	λιοντάρι	lion	4	
	γουρούνι	pig	3	
	παιδί	child	15	83%
μαλώνει scold	*πουλί*	bird	5	
	ζώο	animal	13	72%
	ποντίκι	mouse	4	
	γάιδαρος	donkey	14	78%
τραβάει pulls	*άλογο*	horse	10	56%
	παλικάρι	young man	8	
	αγόρι	boy	8	
	κορίτσι	girl	10	56%

3. Pre-tests for verbs: Examples

Ιωάννα

Φτιάξτε προτάσεις με τα παρακάτω ρήματα, χωρίς να αλλάξετε το χρόνο και το πρόσωπο.

1. δείχνει: Ο τροχονόμος δείχνει ποια κατεύθυνση να πάρεις.
2. χαιρετάει: Η αδελφή μου χαιρετάει τα παιδιά, που φεύγουν.
3. μαλώνει: Η μαμά μαλώνει το μωρό, που έσπασε το βάζο.
4. τραβάει: Η μεγάλη βάρκα τραβάει την μικρή στ' άγκυρα του βυαλού
5. ακούει: Ο χορευτής πρέπει να ακούει τη μουσική
6. κλωτσάει: Το παιδί κλωτσάει την μπάλα.
7. αγαπάει: Μ' αγαπάει ένας τρελλός
8. κοιτάζει: Η κοπέλα κοιτάζει το ηλιοβασίλεμα
9. κυνηγάει: Ο κάκαρος κυνηγάει τις κότες στην αυλή

Ποιο ουσιαστικό προτιμάτε για υποκείμενο του ρήματος; Γράψτε Υ μέσα στο κουτάκι δίπλα από το ουσιαστικό που προτιμάτε κάθε φορά. Δεν υπάρχει σωστό ή λάθος!!

1. κλωτσάει — πρόβατο [Υ] / λιοντάρι [ ]
2. μαλώνει — πουλί [ ] / ζώο [Υ]
3. κλωτσάει — γουρούνι [ ] / παιδί [Υ]
4. τραβάει — άλογο [ ] / παλικάρι [Υ]
5. μαλώνει — ποντίκι [ ] / γαϊδούρι [Υ]
6. τραβάει — αγόρι [Υ] / κορίτσι [ ]

Pre-tests for pictures: Example

4. Instructions

CHOOSE THE RIGHT PICTURE!

Aim: The aim of this activity is to measure the time between the beginning of a linguistic stimulus and the hearer's natural response.
Means: The experiment runs on a portable Macintosh. Pictures will appear on its screen. From a pair of headphones you will hear Greek sentences. A button box with three buttons is also attached to the computer: starting from the left, the colours of these buttons are red, yellow, and green.

What do you have to do: On the left side of the screen two pictures will appear each time; these two pictures will be nearly the same. The picture on top will be picture '1' and the picture bellow it will be picture '2'. The numbers '1' and '2' will appear next to the relevant picture. '1' will be red and '2' will be green; picture 1 is related to the red button and picture '2' to the green button.
You can look at the pictures for as long as you wish. As soon as you think you know what's going on in each picture and you feel ready to listen to the sentence, you will press the yellow button, so that you can hear a Greek sentence.
You will have to decide **-as fast as possible-** whether the sentence you are listening to describes picture 1 or picture 2, by pressing one of the two buttons: the red (1) or the green (2) one. If you think that the sentence is describing picture 1, you will press the red button. If you think that the sentence you are hearing is describing picture 2, you will press the green button.
You don't have to wait for the sentence to finish in order to press one of the two buttons: if, after hearing the first words of the sentence, you think that you have understood which picture the sentence is referring to, press the relevant button. The sentence will always finish even if you have pressed one of the two buttons before its end. If you need more time to decide which is the right one, don't worry: the two pictures will stay on the screen until you press either '1' or '2'. Try to be as fast as you can!
When you have read this page, ask the researcher to show you the example.
When the pictures appear on the screen, turn the page and read the instructions.

EXAMPLE:
On the screen of the computer you first see the word 'ΚΟΙΤΑΞΕ' (*look*) for a second. Then, on the left side of the screen two pictures appear. Next to the picture on the top you can see the number '1', and next to the picture at the bottom, the number '2'. In picture No '1' now you can see a man sitting on the globe, and in picture No '2' there is a woman sitting on the globe in exactly the same way.

Now press the yellow button so that you can hear the sentence.

As soon as you press the yellow button, the word 'ΔΙΑΛΕΞΤΕ!' (*choose*) appears on the right side of the screen. This word –and the pictures- will remain on the screen until the end of the trial (i.e. until the end of the sentence or until you press one of the two buttons).

The sentence you heard said

«η γυναίκα κάθεται στην υδρόγειο»

As soon as you heard the word «γυναίκα» -or even before the end of the phase- you probable wanted to press the relevant button. Or you could have pressed it after the verb

«κάθεται» or before its articulation had reached its end. In both cases your reaction would have been fast. This is exactly what we want from you: **to choose the right picture as fast as you can.** The timer starts running from the moment you start hearing the sentence (i.e. as soon as you press the yellow button). The time you spend looking at the pictures before that does not count (i.e. we are not measuring how much time you need before pressing the yellow button).

Once you have pressed one of the two buttons and after the sentence has finished, the pictures disappear from the screen, and a new trial begins (the word 'ΚΟΙΤΑΞΕ', two new pictures, etc.).
Now, press the yellow button to see the example pictures again. Try it yourself!

Do you have any questions? Ask the researcher!

PRACTICE:
You will now have a practice session with 15 pairs ('1' & '2') of pictures. Then the experiment will start.
If after the practice you still don't feel familiarized with the process, ask the researcher to repeat the practice session.

5. DESCRIPTIVE STATISTICS

5.1. GREEK GROUP

5.1.1.Subject assignment of 1ST NP

	Mean	Std.D.	SE
SVOSOMAR	.9250	.1032	.0243
SVOSMAR	.9722	.1179	.0278
SVOOMAR	.9722	.1179	.0278
SVONOMAR	.9444	.1617	.0381
VSOSOMAR	.9439	.0994	.0234
VSOSMAR	.9722	.1179	.0278
VSOOMAR	.8889	.2139	.0504
VSONOMAR	1.0000	0.0000	0.0000
VOSSOMAR	.0756	.0869	.0205
VOSSMAR	.1111	.2139	.0504
VOSOMAR	.0278	.1179	.0278
VOSNOMAR	.7778	.2557	.0603

5.1.2.RTs

	Mean	Std.D.	SE
SVOSOMAR	7.7944	.1955	.0461
SVOSMAR	7.6794	.2093	.0493
SVOOMAR	7.8267	.2676	.0631
SVONOMAR	7.7422	.1940	.0457
VSOSOMAR	7.8267	.1404	.0331
VSOSMAR	7.7444	.2156	.0508
VSOOMAR	7.8444	.2037	.0480
VSONOMAR	7.8839	.1838	.0433
VOSSOMAR	7.9011	.1463	.0345
VOSSMAR	7.9967	.1481	.0349
VOSOMAR	7.9217	.3375	.0796
VOSNOMAR	7.8606	.2085	.0491

5.1.3. Errors

	Mean	Std.D.	SE
SVOSOMAR	.0750	.1032	.0243
SVOSMAR	.0278	.1179	.0278
SVOOMAR	.0278	.1179	.0278
VSOSOMAR	.0561	.0994	.0234
VSOSMAR	.0278	.1179	.0278
VSOOMAR	.1111	.2139	.0504
VOSSOMAR	.0756	.0869	.0205
VOSSMAR	.1111	.2139	.0504
VOSOMAR	.0278	.1179	.0278

5.2. Albanian elementary

5.2.1. Subject assignment of 1ST NP

	Mean	Std.D	SE
SVOSOMAR	.8700	.1566	.0369
SVOSMAR	.9444	.1617	.0381
SVOOMAR	.8333	.2425	.0572
SVONOMAR	.6944	.3038	.0716
VSOSOMAR	.8422	.1555	.0366
VSOSMAR	.8889	.2139	.0504
VSOOMAR	.7222	.3524	.0831
VSONOMAR	1.0000	0.0000	0.0000
VOSSOMAR	.2044	.2457	.0579
VOSSMAR	.4444	.4162	.0981
VOSOMAR	.3889	.4042	.0953
VOSNOMAR	.1667	.2970	.0700

5.2.2. RTs

	Mean	Std.D	SE
SVOSOMAR	8.1467	.3454	.0814
SVOSMAR	8.1322	.5903	.1391
SVOOMAR	8.1067	.4042	.0953
SVONOMAR	8.1494	.3751	.0884
VSOSOMAR	8.2117	.4020	.0948
VSOSMAR	8.1450	.3577	.0843
VSOOMAR	8.3983	.4455	.1050
VSONOMAR	8.6117	.5109	.1204
VOSSOMAR	8.2828	.4254	.1003
VOSSMAR	8.3361	.4100	.0966
VOSOMAR	8.3161	.4456	.1050
VOSNOMAR	8.4500	.2666	.0628

5.2.3. Errors

	Mean	Std.D.	SE
SVOSOMAR	.1300	.1566	.0369
SVOSMAR	.0556	.1617	.0381
SVOOMAR	.1667	.2425	.0572
VSOSOMAR	.1578	.1555	.0366
VSOSMAR	.1111	.2139	.0504
VSOOMAR	.2778	.3524	.0831
VOSSOMAR	.2044	.2457	.0579
VOSSMAR	.4444	.4162	.0981
VOSOMAR	.3889	.4042	.0953

5.3. Albanian advanced

5.3.1. Subject assignment of 1ST NP

	Mean	Std.D.	SE
SVOSOMAR	.9072	.1300	.0306
SVOSMAR	.9722	.1179	.0278
SVOOMAR	.9444	.1617	.0381
SVONOMAR	.9167	.1917	.0452
VSOSOMAR	.9078	.1415	.0333
VSOSMAR	.9167	.1917	.0452
VSOOMAR	.7222	.2557	.0603
VSONOMAR	1.0000	0.0000	0.0000
VOSSOMAR	.1111	.1391	.0328
VOSSMAR	.2222	.3524	.0831
VOSOMAR	.1667	.2425	.0572
VOSNOMAR	.1389	.2873	.0677

5.3.2. RTs

	Mean	Std.D.	SE
SVOSOMAR	7.9594	.2398	.0565
SVOSMAR	7.7867	.2493	.0588
SVOOMAR	7.9211	.3433	.0809
SVONOMAR	7.9083	.2495	.0588
VSOSOMAR	8.0100	.2120	.0500
VSOSMAR	7.9167	.1986	.0468
VSOOMAR	8.1594	.3745	.0883
VSONOMAR	8.1078	.3294	.0776
VOSSOMAR	8.0278	.2163	.0510
VOSSMAR	8.0789	.3110	.0733
VOSOMAR	8.1622	.3219	.0759
VOSNOMAR	8.0867	.2474	.0583

5.3.3. Errors

	Mean	Std.D.	SE
SVOSOMAR	.0928	.1300	.0306
SVOSMAR	.0278	.1179	.0278
SVOOMAR	.0556	.1617	.0381
VSOSOMAR	.0922	.1415	.0333
VSOSMAR	.0833	.1917	.0452
VSOOMAR	.2778	.2557	.0603
VOSSOMAR	.1111	.1391	.0328
VOSSMAR	.2222	.3524	.0831
VOSOMAR	.1667	.2425	.0572

5.4. English elementary

5.4.1 Subject assignment of 1ST NP

	Mean	Std.D.	SE
SVOSOMAR	.8972	.1419	.0334
SVOSMAR	.9444	.1617	.0381
SVOOMAR	.8611	.2304	.0543
SVONOMAR	.8056	.2508	.0591
VSOSOMAR	.7222	.2731	.0644
VSOSMAR	.8333	.2970	.0700
VSOOMAR	.7222	.3524	.0831
VSONOMAR	1.0000	0.0000	0.0000
VOSSOMAR	.5000	.2350	.0554
VOSSMAR	.4722	.3627	.0855
VOSOMAR	.6389	.3346	.0789
VOSNOMAR	.3611	.4132	.0974

5.4.2. RTs

	Mean	Std.D.	SE
SVOSOMAR	8.1272	.2845	.0671
SVOSMAR	7.9917	.3128	.0737
SVOOMAR	8.0756	.2652	.0625
SVONOMAR	8.1922	.3018	.0711
VSOSOMAR	8.2183	.2803	.0661
VSOSMAR	8.1822	.2976	.0701
VSOOMAR	8.2517	.3068	.0723
VSONOMAR	8.3111	.3247	.0765
VOSSOMAR	8.3128	.2819	.0665
VOSSMAR	8.2744	.3511	.0828
VOSOMAR	8.2800	.3617	.0853
VOSNOMAR	8.2956	.2930	.0691

5.4.3. Errors

	Mean	Std.D.	SE
SVOSOMAR	.1028	.1419	.0334
SVOSMAR	.0556	.1617	.0381
SVOOMAR	.1389	.2304	.0543
VSOSOMAR	.2778	.2731	.0644
VSOSMAR	.1667	.2970	.0700
VSOOMAR	.2778	.3524	.0831
VOSSOMAR	.4911	.2246	.0529
VOSSMAR	.4722	.3627	.0855
VOSOMAR	.6389	.3346	.0789

5.5. English advanced

5.5.1. Subject assignment of 1ST NP

	Mean	Std.D.	SE
SVOSOMAR	1.0000	0.0000	0.0000
SVOSMAR	.9167	.1917	.0452
SVOOMAR	.9722	.1179	.0278
SVONOMAR	.9444	.1617	.0381
VSOSOMAR	.8700	.1764	.0416
VSOSMAR	.8056	.3038	.0716
VSOOMAR	.4444	.4162	.0981
VSONOMAR	.4722	.3196	.0753
VOSSOMAR	.1294	.1852	.0436
VOSSMAR	.1389	.2304	.0543
VOSOMAR	.1944	.3489	.0822
VOSNOMAR	0.0000	0.0000	0.0000

5.5.2. RTs

	Mean	Std.D.	SE
SVOSOMAR	7.9056	.2533	.0597
SVOSMAR	7.8194	.2635	.0621
SVOOMAR	8.0172	.2802	.0660
SVONOMAR	7.9167	.2607	.0615
VSOSOMAR	8.0789	.2034	.0479
VSOSMAR	8.0067	.3575	.0843
VSOOMAR	8.1672	.3283	.0774
VSONOMAR	8.2006	.3271	.0771
VOSSOMAR	8.0589	.2109	.0497
VOSSMAR	8.0239	.2133	.0503
VOSOMAR	8.1356	.3152	.0743
VOSNOMAR	8.1344	.2422	.0571

5.5.3. Errors

	Mean	Std.D.	SE
SVOSOMAR	0.0000	0.0000	0.0000
SVOSMAR	.0833	.1917	.0452
SVOOMAR	.0278	.1179	.0278
VSOSOMAR	.1300	.1764	.0416
VSOSMAR	.1667	.2970	.0700
VSOOMAR	.5278	.4012	.0946
VOSSOMAR	.1294	.1852	.0436
VOSSMAR	.1389	.2304	.0543
VOSOMAR	.1944	.3489	.0822

6. Difference from the Greek: Albanian elementary

6.1. Subject assignment of 1ST NP

	Mean	Std.D.	SE
SVOSOMAR	-.0550	.0981	.0231
SVOSMAR	-.0278	.2081	.0490
SVOOMAR	-.1389	.2873	.0677
SVONOMAR	-.2500	.3536	.0833
VSOSOMAR	-.1017	.2069	.0488
VSOSMAR	-.0833	.2572	.0606
VSOOMAR	-.1667	.4537	.1069
VSONOMAR	0.0000	0.0000	0.0000
VOSSOMAR	.1289	.2593	.0611
VOSSMAR	.3333	.4201	.0990
VOSOMAR	.3611	.4132	.0974
VOSNOMAR	-.6111	.2742	.0646

6.2. RTs

	Mean	Std.D.	SE
SVOSOMAR	.3522	.3648	.0860
SVOSMAR	.4528	.5932	.1398
SVOOMAR	.2800	.4631	.1092
SVONOMAR	.4072	.3002	.0708
VSOSOMAR	.3850	.4508	.1062
VSOSMAR	.4006	.4389	.1035
VSOOMAR	.5539	.5221	.1231
VSONOMAR	.7278	.5432	.1280
VOSSOMAR	.3817	.4766	.1123
VOSSMAR	.3394	.4181	.0985
VOSOMAR	.3944	.4645	.1095
VOSNOMAR	.5894	.3938	.0928

6.3. Errors

	Mean	Std.D.	SE
SVOSOMAR	.0550	.0981	.0231
SVOSMAR	.0278	.2081	.0490
SVOOMAR	.1389	.2873	.0677
VSOSOMAR	.1017	.2069	.0488
VSOSMAR	.0833	.2572	.0606
VSOOMAR	.1667	.4537	.1069
VOSSOMAR	.1289	.2593	.0611
VOSSMAR	.3333	.4201	.0990
VOSOMAR	.3611	.4132	.0974

7. Difference from the Greek: Albanian advanced

7.1. Subject assignment of 1ST NP

	Mean	Std.D.	SE
SVOSOMAR	-.0178	.1603	.0378
SVOSMAR	0.0000	.1715	.0404
SVOOMAR	-.0278	.1179	.0278
SVONOMAR	-.0278	.2697	.0636
VSOSOMAR	-.0361	.2021	.0476
VSOSMAR	-.0556	.2357	.0556
VSOOMAR	-.1667	.3835	.0904
VSONOMAR	0.0000	0.0000	0.0000
VOSSOMAR	.0356	.1212	.0286
VOSSMAR	.1111	.4714	.1111
VOSOMAR	.1389	.2304	.0543
VOSNOMAR	-.6389	.2873	.0677

7.2. RTs

	Mean	Std.D.	SE
SVOSOMAR	.1650	.2550	.0601
SVOSMAR	.1072	.3400	.0801
SVOOMAR	.0944	.3491	.0823
SVONOMAR	.1661	.3347	.0789
VSOSOMAR	.1833	.2890	.0681
VSOSMAR	.1722	.2557	.0603
VSOOMAR	.3150	.3920	.0924
VSONOMAR	.2239	.4090	.0964
VOSSOMAR	.1267	.2249	.0530
VOSSMAR	.0822	.3659	.0863
VOSOMAR	.2406	.4090	.0964
VOSNOMAR	.2261	.3230	.0761

7.2. Errors

	Mean	Std.D.	SE
SVOSOMAR	.0178	.1603	.0378
SVOSMAR	.0000	.1715	.0404
SVOOMAR	.0278	.1179	.0278
VSOSOMAR	.0361	.2021	.0476
VSOSMAR	.0556	.2357	.0556
VSOOMAR	.1667	.3835	.0904
VOSSOMAR	.0356	.1212	.0286
VOSSMAR	.1111	.4714	.1111
VOSOMAR	.1389	.2304	.0543

8. Difference from the Greek: English elementary

8.1. Subject assignment of 1ST NP

	Mean	Std.D.	SE
SVOSOMAR	-.0278	.1646	.0388
SVOSMAR	-.0278	.2081	.0490
SVOOMAR	-.1111	.2742	.0646
SVONOMAR	-.1389	.2873	.0677
VSOSOMAR	-.2217	.2957	.0697
VSOSMAR	-.1389	.3346	.0789
VSOOMAR	-.1667	.4537	.1069
VSONOMAR	0.0000	0.0000	0.0000
VOSSOMAR	.4244	.2569	.0605
VOSSMAR	.3611	.4791	.1129
VOSOMAR	.6111	.3234	.0762
VOSNOMAR	-.4167	.5491	.1294

8.2. RTs

	Mean	Std.D.	SE
SVOSOMAR	.3328	.3754	.0885
SVOSMAR	.3122	.3679	.0867
SVOOMAR	.2489	.3843	.0906
SVONOMAR	.4500	.3183	.0750
VSOSOMAR	.3917	.3316	.0782
VSOSMAR	.4378	.4063	.0958
VSOOMAR	.4072	.3418	.0806
VSONOMAR	.4272	.3464	.0816
VOSSOMAR	.4117	.3440	.0811
VOSSMAR	.2778	.4016	.0947
VOSOMAR	.3583	.4412	.1040
VOSNOMAR	.4350	.3202	.0755

8.3. Errors

	Mean	Std.D.	SE
SVOSOMAR	.0278	.1646	.0388
SVOSMAR	.0278	.2081	.0490
SVOOMAR	.1111	.2742	.0646
VSOSOMAR	.2217	.2957	.0697
VSOSMAR	.1389	.3346	.0789
VSOOMAR	.1667	.4537	.1069
VOSSOMAR	.4156	.2445	.0576
VOSSMAR	.3611	.4791	.1129
VOSOMAR	.6111	.3234	.0762

9. Difference from the Greek: English advanced

9.1. Subject assignment of 1ST NP

	Mean	Std.D.	SE
SVOSOMAR	.0750	.1032	.0243
SVOSMAR	-.0556	.2357	.0556
SVOOMAR	-.0000	.1715	.0404
SVONOMAR	0.0000	.2425	.0572
VSOSOMAR	-.0739	.2155	.0508
VSOSMAR	-.1667	.3430	.0808
VSOOMAR	-.4444	.4817	.1135
VSONOMAR	-.6944	.3489	.0822
VOSSOMAR	.0539	.1804	.0425
VOSSMAR	.0278	.3196	.0753
VOSOMAR	.1667	.3835	.0904
VOSNOMAR	-.6111	.4391	.1035

9.2. RTs

	Mean	Std.D.	SE
SVOSOMAR	.1111	.2240	.0528
SVOSMAR	.1400	.2963	.0698
SVOOMAR	.1906	.2746	.0647
SVONOMAR	.1744	.3016	.0711
VSOSOMAR	.2522	.2151	.0507
VSOSMAR	.2622	.3536	.0833
VSOOMAR	.3228	.3364	.0793
VSONOMAR	.3167	.3619	.0853
VOSSOMAR	.1578	.2732	.0644
VOSSMAR	.0272	.2370	.0559
VOSOMAR	.2139	.4911	.1158
VOSNOMAR	.2739	.2730	.0643

9.3. Errors

	Mean	Std.D.	SE
SVOSOMAR	-.0750	.1032	.0243
SVOSMAR	.0556	.2357	.0556
SVOOMAR	0.0000	.1715	.0404
VSOSOMAR	.0739	.2155	.0508
VSOSMAR	.1389	.3346	.0789
VSOOMAR	.4167	.4618	.1088
VOSSOMAR	.0539	.1804	.0425
VOSSMAR	.0278	.3196	.0753
VOSOMAR	.1667	.3835	.0904

APPENDIX III:

PRODUCTION EXPERIMENT

1. Materials

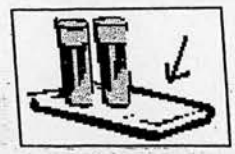
EXPERIMENTAL VERBS (verbs in bold letters were not used in the comprehension experiment)

1. aghapao (love)
2. **akumpao (touch)**
3. dhihno (point/show)
4. klotsao (kick)
5. kitazo (look)
6. **kratao (hold)**
7. kynighao (chase)
8. malono (scold)
9. travao (pull)
10. **filao (kiss)**
11. **fonazo (call)**
12. heretao (greet)

Noun illustrations (examples)

ελέφαντ-

χιονάνθρωπ-



δίσκ-

κλέφτ-

ποντίκ-

γουρούν-

βασίλισσ-

μάγειρ-

3. Instructions

ΠΕΡΙΓΡΑΦΗ ΕΙΚΟΝΩΝ

Στόχος:

Ο στόχος αυτής της δραστηριότητας είναι η συλλογή προφορικού λόγου από ομιλητές της Ελληνικής γλώσσας, Έλληνες ή ξένους, για να μελετηθούν οι ομοιότητες και οι διαφορές που υπάρχουν ανάμεσα σε ομιλητές με διαφορετικές μητρικές γλώσσες.

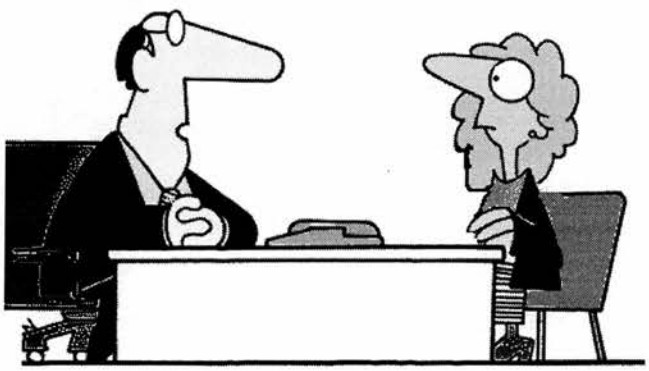
Τι πρέπει να κάνετε:

Θα βλέπετε μία εικόνα και θα σας δίνεται και ένα συγκεκριμένο ρήμα. Έπειτα η ερευνήτρια θα σας κάνει μερικές ερωτήσεις σχετικές με την εικόνα. Εσείς θα πρέπει να απαντάτε σε αυτό ακριβώς που σας ρωτάει. Τουλάχιστον σε μία από τις απαντήσεις σας, θα πρέπει να χρησιμοποιήσετε το ρήμα που σας δίνεται.

Μετά από αυτό, θα σας δείχνουμε μια άλλη εικόνα, σχεδόν όμοια με την προηγούμενη, αυτήν που θα έχετε μόλις περιγράψει. Θα σας ζητάμε τότε να πείτε ποια είναι η διαφορά ανάμεσα στις δύο εικόνες, χρησιμοποιώντας ΜΟΝΟ ΜΙΑ ΠΡΟΤΑΣΗ, στην οποία θα πρέπει να χρησιμοποιήσετε το ρήμα που σας είχε δοθεί.

Παράδειγμα:

Ας πούμε, λοιπόν, ότι βλέπατε αυτή την εικόνα



και ότι σας δίναμε το ρήμα:

μιλάω

Και η ερευνήτρια σας ρωτάει:

-Τι βλέπεις σε αυτή την εικόνα;

Εσείς θα μπορούσατε να απαντήσετε:

-Βλέπω έναν άντρα και μια γυναίκα σε ένα γραφείο. Ο άντρας κάθεται στο γραφείο του και **μιλάει** σε μια κοπέλα. Η κοπέλα κοιτάει τον άντρα με προσοχή αλλά ο άντρας δεν ξέρουμε πού ακριβώς κοιτάζει. Μάλλον την κοπέλα κοιτάζει.

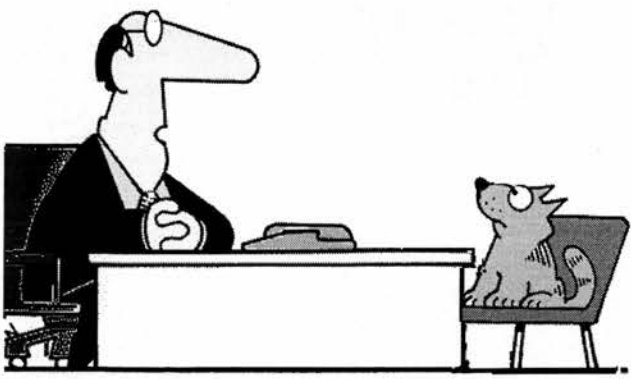
Αν η ερευνήτρια σας ρωτούσε μετά

-Και τι άλλο υπάρχει στην εικόνα;

ίσως να λέγατε:

-Υπάρχει ένα τηλέφωνο πάνω στο γραφείο.

Αν μετά σας δείχναμε μια εικόνα σαν αυτή:



και η ερευνήτρια σας ρωτούσε:

-Τώρα, τι γίνεται;

πιθανώς να χρησιμοποιούσατε μια πρόταση όπως η παρακάτω:

«Τώρα **μιλάει** σε μια γάτα ο κύριος»

Εξάσκηση και ερωτήσεις:

Τώρα θα ακολουθήσει μια μικρή εξάσκηση, για να καταλάβετε καλύτερα τι ακριβώς σας ζητάμε να κάνετε. Μετά την εξάσκηση θα ακολουθήσουν οι εικόνες του πειράματος. Αν θέλετε κάτι να ρωτήσετε, μπορείτε να ζητήσετε από την ερευνήτρια να σας δώσει περαιτέρω εξηγήσεις τώρα, κατά την εξάσκηση, ή μετά από αυτή.

Αν διαβάσατε αυτές τις οδηγίες και θέλετε να ρωτήσετε κάτι, πείτε το στην ερευνήτρια. Αν δεν έχετε ερωτήσεις ζητήστε να αρχίσει η εξάσκηση.

4. Transcription of the experimental session: KGO (EaG)

Λοιπόν, για να δούμε. Εδώ τι γίνεται;
Βλέπω μια γιαγιά που είναι λίγο από πίσω από ένα σκυλάκι που χαιρετάει κάποιον ή ένα αλογάκι που έχει ένα δωράκι μπροστά.
Δηλαδή χαιρετάει, ποιος χαιρετάει;
Ο σκύλος χαιρετάει μου φαίνεται.
Το αλογάκι ή τη γιαγιά, ναι.
Δε ξέρω μπορεί να είναι και - μπορεί να χαιρετάει και κάποιον άλλον που δε -που δεν είναι στην εικόνα.
Και η διαφορά;
Τώρα η γιαγιά χαιρετάει μάλλον τον σκύλο.
Όχι το αλογάκι.
Όχι!
Εδώ τι γίνεται;
Τώρα είναι τέσσερι πι- πιγκουίνοι, ο ένας μιλάει και οι άλλοι –όλοι κοιτάνε μάλλον ένα πουλάκι και είναι – οι πιγκουίνοι είναι από τα – απ' τ' αριστερά και βλέπουνε προς δεξιά.
Ωραία. Και η διαφορά;
Τώρα το πουλάκι είναι στη μέση ακριβώς από τους πιγκουίνους.
Ωραία. Σε αυτήν; Τι γίνεται;
Είναι ένα πουλάκι νομίζω είναι πουλάκι πάνω σε ένα δέντρο και ένα παπάκι που χαιρετάει ένα ελέφαντα από αριστερά. Α, όχι, δεν χαιρετάει. Το παπάκι μαλώνει το- τον ελέφαντα.
Ωραία. Και η διαφορά;
Τώρα το- ο –ο ελέφαντας το παπάκι μαλώνει.
Σε αυτήν εδώ τι βλέπουμε;
Είναι μια κυρία που παραγγέλνει το φαγητό της και ο σερβιτόρος παίρνει παραγγελία και στέκεται από δεξιά της.
Ωραία. Και ποια είναι η διαφορά;
Τώρα ο σερβιτόρος στέκεται από πίσω της κυρίας.
Ωραία. Σ' αυτήν τι βλέπουμε; Έλα ντε.
Έλα ντε. Λοιπόν, νομίζω πως βλέπω ένα κύριο- κύριο εκεί πέρα που δηλώνει την αγάπη για τη τηλεόραση, μου φαίνεται ότι αγαπάει πάρα πολύ τη τηλεόραση μπορεί να είναι ότι αγαπάει τη γυναίκα που είναι από αριστερά της τηλεόρασης.
Και ποια είναι η διαφορά τώρα;
Τώρα είναι η γυναίκα που αγαπάει τη τηλεόραση. Και είναι από την άλλη πλευρά επίσης.
Σ' αυτήν εδώ τι βλέπουμε;
Βλέπω δύο παιδάκι που μάλλον είναι στο δρόμο, περπατάει το –το κοριτσάκι και το αγοράκι έχει ένα σακίδιο στο- στη πλάτη του.
Και η διαφορά;
Τώρα έχουν και οι δύο σακίδιο στη- στη πλάτη.
Ακριβώς. Σε αυτήν εδώ;
Λοιπόν, έχουμε μια κοπέλα που κοιτάζει προς τα πίσω της όπου στέκεται ένα αγόρι που κοιτάζει μια μπύρα. Με λαχτάρα.
Και η διαφορά;
Τώρα είναι η κοπέλα που κοιτάζει τη μπύρα.
Ωραία. Εδώ;
Βλέπω μια κυρία, μπορεί να είναι μαγείρισσα που φοράει ποδιά και μια νοσοκόμα που φοράει τη στο- στολή της.
Ωραία. Και η διαφορά;
Τώρα η κυρία φοράει από κάτω απ' τη ποδιά ένα κίτρινο φόρεμα ενώ στο άλλο ήταν κι-κόκκινο.
Ακριβώς. Εδώ;
Βλέπω μια κυρία που είναι από πίσω από έναν άντρα που φιλάει μια- ένα- μια κολόνα.
Και η κυρία;
Η κυρία το κοιτάζει και έχει το πόδι της λίγο -έχει το γόνατο προς τα μέσα κάπως.

Και η διαφορά;
Η διαφορά είναι ότι τώρα η – η κυρία το- τη κολόνα φιλάει.
Ωραία. Σ' αυτήν εδώ τι βλέπουμε;
Βλέπω μια χελώνα και μια φώκια που είναι πάνω από - ξέρω γω πώς θα το πούμε αυτό
Σκαμπό
Ένα σκαμπό που παίζει με μια μπάλα.
Ωραία. Και η διαφορά;
Ο! τώρα το χελώνα παίζει- παίζει το χελώνα
Η φώκια, ε;
Ναι.
Και η μπάλα
Από κάτω.
Ωραία. Σε αυτήν εδώ τι βλέπουμε;
Βλέπω ένα σκυλάκι που αγαπ- που ακουμπάει μια βασίλισσα.
Αλλά τώρα;
Και τώρα η βασίλισσα ακουμπάει το σκυλάκι.
Ωραία. Σ' αυτή; Να το βάλω και ίσια το ρήμα.
Είναι δυο μαθητές που κάθονται στα θρανία τους, είναι ένα αγοράκι από πίσω, μια κοπελίτσα από μπροστά, διαβάζει η κοπέλα και γράφει ο – ο μαθητής.
Και ποια είναι η διαφορά;
Τώρα είναι η κοπέλα που είναι από πι- που κάθεται από πίσω.
Ακριβώς. Σε αυτήν εδώ τι βλέπουμε;
Βλέπω ένα – ένα τουρίστα που το τραβάει ένας αστυνόμος.
Ωραία. Αλλά ο τουρίστας στενοχωριέται;
Μπα.
Χαίρεται.
Χαίρεται μάλλον.
Μες στη χαρά. Και η διαφορά;
Τώρα είναι ο τουρίστας που τραβάει τον αστυνόμο.
Ωραία. Σε αυτήν εδώ;
Είναι δύο παιδάκια, ένα αγοράκι στα αριστερά μια κοπελίτσα στα δεξιά που είναι λίγο μεγαλύτερη και ένα άντρα από πίσω που έχει ένα δώρο στα- στα χέρια του.
Και ποια είναι η διαφορά;
Τώρα είναι η κοπέλα που έχει το δώρο και το δίνει στο παιδί.
Ωραία. Εδώ;
Είναι – βλέπω μια κυρία που φιλάει ένα κλόουν και ένα άντρα στα δεξιά της.
Ο οποίος ζηλεύει;
Μπορεί και να ζηλεύει λίγο αλλά δε- δε το πολυεκδηλώνει.
Και η διαφορά;
Τώρα ο άντρας φιλάει το- το κλάουν και αυτή τη σ- αυτή τη φορά ο κλάουν είναι από δεξιά και όχι από αριστερά της εικόνας.
Εδώ;
Είναι δύο άντρες που στέκονται μπροστά σε – σε ένα υπολογιστή.
Και τι κάνουνε;
Ο ένας κοιτάει και μάλλον δε καταλαβαίνει τι – τι γίνεται εκεί πέρα και ο άλλος τον εξηγεί τι γίνεται.
Και η διαφορά;
Τώρα στέκονται από πίσω απ' το- από το κομπιούτερ.
Ωραία. Εδώ;
Βλέπω ένα καουμπόη που είναι αριστερά από ένα κάκτος και μια κοπέλα που δείχνει στο καουμπόη το κάκτο.
Και η διαφορά;
Και τώρα είναι ο κα- ο καουμπόη που δείχνει το κάκτος.
Ακριβώς. Σε αυτήν εδώ τι γίνεται;
Είναι δύο άντρες που κάθονται αντικριστά και κρατάνε κάτι χαρτιά στα χέρια τους και υπάρχει και ένα σφ – ένα φλιτζάνι στη μέση.
Και η διαφορά;

Τώρα το φλιτζάνι είναι αριστερά τους. Και κάθονται πάλι αντικριστά.
Σ' αυτήν εδώ;
Είναι δύο παιδάκια μάλλον άτακτα παιδιά και φαίνονται πολύ εκνευρισμένα και είναι μια κυρία που κάθεται και η –η κοπελίτσα τη κλωτσάει στη μέση.
Ωραία. Και η διαφορά;
Τώρα είναι το –το αγοράκι που τη κλωτσάει τη κυρία.
Ωραία. Σε αυτήν εδώ;
Είναι δύο τύποι που βρίσκονται μάλλον σε -σε ένα μπαρ, καφετέρια, ξέρω γω, και πίνουνε καφέ, κρατάει ο άνθρωπος νομίζω είναι το κίνητό του, δνε- δε πολυκαταλαβαίνω και μια εφημερίδα σε- σε άλλο χέρι και βρίσκεται και ένας γάτος από πίσω απ' τη κυρία.
Και η διαφορά;
Η διαφορά είναι ότι ο γα- το γατί είναι πλέον από πί- βρίσκεται πίσω από το –απ' τον άντρα και όχι απ΄ τη γυναίκα.
Σ' αυτήν; Τι βλέπουμε;
Βλέπω δύο –μια γυναίκα που μαλώνει- μαλώνει το - ένα χιονάνθρωπο και αριστερά της είναι ένας άντρας.
Και η διαφορά;
Τώρα είναι ο –ο άντρας που μαλώνει το χιονάνθρωπο.
Ωραία. Σ' αυτήν;
Είναι μια μαθήτρια που κάθεται στο θρανίο τους που βρίσκεται μπροστά στο πίνακα.
Και ποια είναι η διαφορά;
Τώρα ο πίνακας βρίσκεται στα αριστερά, ε, όχι, ναι, τώρα κάθεται από- από δε- από αριστερά η μαθήτρια και όχι από δεξιά. Αυτό.
Σ' αυτήν εδώ;
Βλέπω τρία ζώα, ένα ελέφαντα, ένα ποντικάκι και ένα γατάκι που αγαπιούνται μεταξύ τους.
Όλοι μαζί;
Νομίζω ναι. Μπορεί και να- να σνομπάρει ο ελέφαντας τη γάτα.
Και ποια είναι η διαφορά τώρα;
Τώρα η γάτα φαίνεται ότι έχει μείνει απ΄ έξω και αγαπάει το ποντίκι τον ελέφαντα.
Ωραία. Σε αυτήν εδώ;
Είναι δύο παιδάκια, μια κοπελίτσα από αριστερά που τραγουδάει και από δεξιά ένα αγοράκι που παίζει πιάνο.
Και τώρα;
Είναι από αριστερά το παιδί που παίζει πιάνο.
Ακριβώς. Εδώ;
Είναι μια κυρία στο δρόμο που φωνάζει έναν άνθρωπο που γνωρίζει.
Και αυτός την ακούει;
Με το όνομά του. Ε, δεν την ακούει, μάλλον μπορεί να-να μη θέλει να την ακούσει κιόλας.
Και η διαφορά;
Διαφορά είναι ότι τώρα ο άντρας τη φωνάζει και αυτή δεν ακούει.
Ωραία. Εδώ, τι βλέπουμε;
Βλέπω -μπορεί να είναι ζευγάρι που φοράνε πουλόβερ παρό,τι έχει λιακάδα, ο – το αγόρι φοράει μπλε πουλόβερ ενώ η κοπέλα κίτρινο και γυαλιά ηλίου.
Και η διαφορά;
Τώρα είναι το παιδί που φοράει γυαλιά ηλίου.
Ωραία. Σε αυτήν;
Βλέπω μια τουρίστρια που ακουμπιέται από ένα άραβα και ένα κύριο από αριστερά που κρατάει ομπρέλα.
Και η διαφορά;
Τώρα είναι ο κύριος από αριστερά που ακουμπάει τη τουρίστρια.
Ωραία. Εδώ;
Βλέπω το δάσκαλο που στέκεται μπροστά στο πίνακα και θέλει να δείξει κάτι στο –στο πίνακα που έχει γράψει.
Και ποια είναι η διαφορά;

Τώρα στέκεται λίγο πιο προς τα δεξιά στο πίνακα.
Ωραία. Εδώ; Τι γίνεται;
Ναι, λοιπόν είναι δύο- δύο κυρίες, η μια είναι λίγο μεγαλύτερη απ' την α–απ' την άλλη και στέκεται προς τα δεξιά και κρατάει ένα μωράκι και η άλλη που τη μιλάει φαίνεται ότι κρατάει και έναν άντρα από πίσω στη πλάτη του.
Ωραία. Και η διαφορά;
Τώρα το μωρό το κρατάει ο άντρας.
Ακριβώς. Σ΄ αυτήν;
Είναι ένας κύριος που είναι μέσα σε ένα βαρέλι και δείχνει σε μια κυρία μια πινακίδα που γράφει ότι θέλει ρούχα. Είναι γυμνός μέσα στο –στο βαρέλι.
Και η διαφορά;
Τώρα η – η κυρία είναι λίγο σα να έχει παρεξηγηθεί, ή εκνευριστεί.
Ωραία. Είναι θυμωμένη μάλλον. Σε αυτήν εδώ;
Βλέπω ένα αγοράκι νομίζω ότι είναι αγοράκι που κλωτσάει ένα ροζ ελέφαντα.
Αλλά τώρα;
Και τώρα είναι ο ελέφαντας που κλωτσάει τον αγόρι.
Σ' αυτήν εδώ;
Είμαστε στη παραλία και μιλάει ένα πουλί νομίζω σε- σε ένα κύριο που κάνει μπάνιο.
Αλλά τώρα;
Τώρα μιλάει στο πουθενά το πουλί.
Πολύ ωραία. Σε αυτήν εδώ;
Βλέπω μια κυρία ή μάλλον μπορεί να είναι και καθηγήτρια που κάθεται στο –στο θρανίο και έρχεται ο διευθυντής του σχολείου και δείχνει ότι την αγαπάει.
Ωραία. Και η διαφορά;
Τώρα είναι πε- η κυ- η καθηγήτρια που αγαπάει το καθηγητή.
Ωραία. Σε αυτήν;
Βλέπω μια νυχτερίδα που είναι από πάνω από ελέφα- από ένα ελέφαντα.
Αλλά τώρα;
Τώρα είναι ακριβώς απάνω του ελέφαντα [...]
Ωραία. Σ' αυτήν;
Είναι μια κυρία, μπορεί και καθηγήτρια και βλέπει ένα ποντικάκι που το δείχνει ένα αγόρι.
Και ποια είναι η διαφορά;
Τώρα το- η –η καθηγήτρια δείχνει το ποντίκι.
Ακριβώς. Σ' αυτήν; Μου πέφτουν όλα.
Βλέπω ένα κλάουν και ένα αλο- άλογο που κοιτάζει το κλάουν.
Και ο κλόουν;
Έχει κλειστά τα μάτια και χαμογελάει.
Ωραία. Και ποια είναι η διαφορά;
Η διαφορά είναι ότι δε κοιτάζει πλέον το κλάουν το- ο- το αλογάκι.
Ωραία. Φεύγει, βαρέθηκε. Σ' αυτήν;
Βλέπω μια κυρία που περπατάει στο δρόμο και χαιρετάει ένα- έναν άντρα.
Και ποια η διαφορά;
Τώρα- τώρα τη κοπέλα τη χαιρετάει ο άντρας πλέον.
Ωραία. Σ΄ αυτήν;
Βλέπω δυο καρχαρίες που αγαπιούνται μεταξύ τους. Μάλλον όχι, για την ακρίβεια ένας καρχαρίας δείχνει ότι αγαπάει τον άλλον που είναι από αριστερά.
Και ποια είναι η διαφορά;
Τώρα φαίνεται αυτό που είναι από αριστερά που τον αγαπάει το μεγάλο να είναι πιο μικρός. Ξέρω γω.
Ωραία. Σε αυτήν;
Βλέπω έναν άντρα που κυνηγάει έναν σκύλο που τρέχει προς μια κυρία.
Και η διαφορά;
Τώρα είναι η κυ- η κυρία που το σκύλο- που κυνηγάει το σκύλο.
Ωραία. Σε αυτήν;
Είναι μια κοπέλα που κοιτάζει ένα παιδί που κάνει- που κάνει βαράκια.
Και ποια είναι η διαφορά;

Η διαφορά είναι ότι η κοπέλα πλέον είναι πιο μεγάλη από τον- τον άντρα ενώ στο- στην πρώτη εικόνα ήτανε πιο μικρή.
Ωραία.
Σε ύψος εννοώ.
Εδώ;
Είμαστε μέσα σε ένα ιατρείο, κάθεται πάνω σε ένα παγάκι μια κυρία και από μπροστά της είναι ο γιατρός και κ- και οι δυο κοιτάζουνε κάτι που βρίσκεται μπροστά, μπορεί και ένα πίνακα ξέρω γω ή να μιλάνε με- να κοιτάνε προς κάποιον άλλο που είναι στο δωμάτιο.
Και η διαφορά;
Τώρα απ' την άλλη πλευρά κοιτάζουνε.
Ωραία. Εδώ;
Λοιπόν, είναι ένα αρκουδάκι που ακουμπάει ένα τραπεζάκι που έχει ένα ψάρι και φαίνεται ότι μιλάει στο ψαράκι.
Και το ψαράκι;
Το ψαράκι δε φαίνεται να ενδιαφέρεται.
Και η διαφορά;
Διαφορά είναι ότι πλέον δε μιλάει ούτε το αρκουδάκι και δεν ενδιαφέρεται κι αυτό.
Έληξε η επικοινωνία.
Ναι.
Εδώ;
Είναι μια κοπελίτσα που φιλάει ένα αγόρι ή μπορεί να είναι άντρα, δεν ξέρω από ηλικία εκεί πέρα.
Και η διαφορά;
Η διαφορά είναι ότι τώρα ο άντρας κοιτα- φιλάει το κορίτσι.
Ωραία. Εδώ;
Είναι ένας άντρας που τρέχει να προλάβει τον άγιο Βασίλη που έχει ξεχάσει να του δώσει το δώρο του.
Ωραία. Και
Και φοράει τις πιτζάμες μάλλον μπορεί να είναι υπνοβάτης κιόλας.
Ποιος έχει το δώρο;
Ο άγιος Βασίλης έχει το δώρο.
Και εδώ;
Τώρα είναι ο – ο άνθρωπος που –που έχει το δώρο.
Ωραία. Σ' αυτήν;
Είναι ένα μωράκι που φωνάζει –τι φωνάζει; Κάτι φωνάζει.
Μπούμπη.
Μπούμπη; Φωνάζει Μπούμπη. Λοιπόν και έχει μια κούκλα στη μέση και άλλο ένα παιδάκι που κάνει το γιατρό.
Ωραία. Και η διαφορά;
Τώρα το παιδί που κάνει το γιατρό φωνάζει Μπούμπη.
Το κουκλάκι ή το παιδάκι;
Δε κατάλαβα;
Φωνάζει το κουκλάκι ή το παιδάκι;
Το παιδάκι, το παιδάκι.
Ωραία. Σε αυτήν εδώ;
Είναι ένας άντρας εκεί πέρα που δείχνει προς μια κυρία που είναι από δεξιά που κρατάει κάτι στο χέρι της. Χαρτοφύλακα, δεν ξέρω.
Και η διαφορά;
Τώρα ο άνθρωπος- τώρα έχει γυριστεί την πλάτη της η κυρία που –απ' το κύριο που δείχνει, που τη δείχνει.
Εδώ;
Βλέπω ένα ζευγάρι που παντρεύονται και ένα παπά που έχει κάτι στη μύτη του και τραγουδάει δεν ξέρω ακριβώς τι έχει στη μύτη του, και το ζευγάρι το κοιτάζουνε λίγο παράξενα.
Και οι δύο τον κοιτάζουνε;
Μάλλον η νύφη για την ακρίβεια κοιτάζει το παπά και ο γαμπρός κοιτάζει τη νύφη.

Ωραία. Και η διαφορά;
Τώρα κοιτάζουν και οι δύο τον παπά μου φαίνεται. Η νύφη λίγο, έχει το βλέμμα της λίγο προς τα κάτω.
Λίγο λοξό.
Ναι.
Εδώ;
Λοιπόν, είναι ένας λαγός εκεί πέρα και αριστερά του έχουμε ένα νομίζω ποτήρι με –με κρέμα ή με –με παγωτό.
Και ποια είναι η διαφορά;
Τώρα από δεξιά πλέον είναι το ποτήρι.
Ωραία. Εδώ;
Είναι δύο παιδάκια που περπατάνε με –στο δρόμο - με δυ- με σακίδια στη πλάτη και χαιρετάνε ένα κύριο μπορεί να είναι αστυνόμος που βρικ- βρίσκεται στα αριστερά τους.
Και η διαφορά;
Τώρα στα –στα δεξιά βρίσκεται ο αστυνόμος. Στα δεξιά.
Ναι, και;
Α, και, η- πλέον είναι η –η κο- η κοπέλα που χαιρετάει τον αστυνόμο
Ενώ πριν;
και όχι το αγόρι. Ήταν το αγόρι.
Ωραία. Σε αυτήν εδώ;
Είναι ένα κλάουν που κάνει ολόκληρη παράσταση εκεί πέρα με τα χέρια τεντωμένα και ένας τουρίστας από αριστερά που κουβαλάει της παναγίας τα μάτια στην πλάτη του.
Ακριβώς. Και η διαφορά ποια είναι;
Τώρα ο τουρίστας που κουβαλάει τα πάντα είναι στα δεξιά του κλόουν.
Ωραία. Σ' αυτήν;
Είναι ένας κλέφτης που είναι στα δεξιά και κα- και καπνίζει και μια κυρία που μάλλον θέλει να του κάνει καμάκι που –που δείχνει κάτι που- που είναι λίγο πιο πέρα.
Και η διαφορά;
Τώρα είναι ο κλέφτης που δείχνει τη κυρία.
Ωραία. Σε αυτή εδώ;
Είναι δύο παιδάκια, ένα αγοράκι και ένα κοριτσάκι, το κοριτσάκι είναι πολύ πιο μικρότερη σε ύψος από το αγοράκι και φωνάζει ένα σκυλάκι που είναι στα αριστερά τους.
Αλλά τώρα;
Τώρα το αγοράκι φωνάζει το σκυλάκι.
Ωραία. Σε αυτήν;
Λοιπόν έχουμε ένα ζευγάρι που παντρεύονται και στέκονται μπροστά στον παπά, και δεξιά του, και ο παπάς διαβάζει απ΄ το – απ' το βιβλίο εκεί.
Και η διαφορά;
Τώρα πάλι στέκονται αρισ- στα δεξιά το ζευγάρι αλλά αυτή τη στιγμή έχει γυριστή τη πλάτη τους, του παπάς προς το ζευγάρι.
Εδώ;
Είναι ένας μάγειρας στα δεξιά και μια νοσοκόμα στα αριστερά και κλωτσάει μια μπάλα η νοσοκόμα.
Και ποια είναι η διαφορά;
Τώρα τη μπάλα τη κλωτσάει ο μάγειρας.
Ακριβώς. Εδώ;
Είναι δύο παιδάκια που κάθονται σε ένα σκαλοπάτι μπροστά σε ένα σπίτι μάλλον στη πόρτα και ένας σ- ένα σκυλάκι, μου φαίνε- σκύλο είναι; Ωραία. Που κάθονται δίπλα τους στα δεξιά.
Ενώ τώρα;
Τώρα ο σκύλος στα αριστερά κάθεται.
Ωραία. Σε αυτήν εδώ;
Έχουμε ένα παπά που ακουμπάει ένα ξυπνητήρι και ένα τύπο στα- στα δεξιά που το κοιτάει.
Και η διαφορά;
Το κοιτάζει μάλλον. Τώρα το ρολόι το κι- το ακουμπάει ο –το παιδί και όχι ο παπάς.
Ακριβώς. Σε αυτήν;

Είναι μια κυρία που τρέχει και κρατάει ένα φλιτζάνι στο χέρι της και μια άλλη κυρία μάλλον μα- μαγείρισσα είναι που στε- στέκεται και δεν κάνει τι- τίποτα στα δεξιά.
Και η διαφορά;
Τώρα η κυρία που κρατάει το- το φλιτζάνι είναι πολύ πιο μικρότερη από τη μαγείρισσα.
Ωραία. Εδώ;
Είναι δύο άνθρωποι δεν ξέρω αν είναι παιδάκια ή ενήλικες, δεν φαίνεται, που περπατάνε μέσα σε –σε κάτι νερά, ο άντρας ή το παιδί δεν ξέρω τραβάει από πίσω του κάτι σαν βαρκάκι που έχει πάρα πολλά δώρα απάνω.
Ωραία. Και η διαφορά;
Τώρα το βαρκάκι το τραβάει η κοπέλα.
Ωραία. Σε αυτήν;
Έχουμε ένα μάγο που βρίσκεται μπροστά σε- που στέκεται μπροστά μάλλον μέσα σε κάτι νερά
Σ' ένα καζάνι κοντά.
Σ' ένα καζ- κοζάνι που βράζει.
Ωραία. Και ποια είναι η διαφορά;
Τώρα στέκεται πιο μακριά απ' το κο- απ' το καζάνι.
Ωραία. Εδώ;
Είναι μια κυρία που τραβάει απ' τα μαλ- μυαλ- απ' τα μαλλιά- απ' τα μαλλιά μια κοπελίτσα που είναι καθιστή και περπατάει ένα αγοράκι και φεύγει απ' την εικόνα προς τα αριστερά.
Ωραία. Και η διαφορά;
Τώρα είναι το αγοράκι που τραβάει τη- το κοριτσάκι.
Ωραία. Εδώ;
Λοιπόν είναι ένας άνθρωπος νομίζω, ένας άντρας εκεί πέρα που βρίσκεται στη πλάτη ενός ελέφαντος.
Ωραία. Και τώρα;
Τώρα βρίσκεται απάνω απ΄τον ελέφαντα, πάνω απ τα σύ- απ' τα σύννεφα.
Ωραία. Εδώ;
Είναι μια κυρία που κρατάει έναν άντρα στα χέρια της.
Και η διαφορά;
Τώρα ο άντρας κρατάει τη γυναίκα.
Ναι. Σε αυτήν;
Βλέπω το ταχυδρόμο που κουβαλάει ένα σακίδιο με πάρα -πάρα πολλά γράμματα και έχει ένα γράμμα στο χέρι του και το κρατάει προς τα πάνω και το δείχνει κάπου.
Και η διαφορά;
Τώρα το σακίδιο που κουβαλάει είναι άδειο.
Ωραία. Σε αυτήν εδώ;
Είναι δύο παιδάκια, ένα αγοράκι στα δεξιά και μια κοπελίτσα στα- στα αριστερά και η κοπέλα κυνηγάει το –το αγόρι.
Και η διαφορά;
Τώρα το αγόρι κυνηγάει τη – τη κοπέλα.
Ωραία. Σε αυτήν εδώ τι βλέπουμε;
Βλέπω δύο ανθρώπους, ένα άντρα και μια γυναίκα και η γυναίκα είναι –είναι από πίσω απ΄ τον άντρα και κρατάει ένα χαρτί στο- στο χέρι της και φαίνεται ότι μιλάει στον άντρα αλλά αυτός δε δίνει σημασία.
Και η διαφορά;
Τώρα η γυναίκα είναι πολύ πιο μικρή απ΄ τον άντρα ενώ στην πρώτη εικόνα ήταν πιο μεγάλη.
Ωραία. Σε αυτήν;
Είναι ένας σερβιτόρος μάλλον γιατί - το λέω επειδή έχει παπιγιόν που έχει τη μύτη του μάλλον πολύ ψηλή και βλέπει προς μια κυρία που κρατάει ένα δίσκο με κάτι ποτήρια στο χέρι της.
Ωραία. Και ποια είναι η διαφορά;
Τώρα το δίσκο το κρατάει ο σερβιτόρος.
Ωραία. Εδώ;

Είμαστε μέσα σε ένα γραφείο στα αριστερά έχουμε μια καρέκλα και έναν υπολογιστή πάνω σε ένα γραφείο και ένα ανθρωπάκι πολύ μικρό, πιο μικρή- πιο μικρός από τη καρέκλα που μιλάει σε μια κυρία που κρατάει ένα χαρτί στο χέρι και το κοιτάζει μάλλον δε καταλαβαίνει τι λέει.
Και η διαφορά;
Τώρα το ανθρωπάκι, ο ανθρωπάκης είναι πάνω από το γραφείο και μιλάει στη κυρία.
Εδώ; Τι βλέπουμε;
Είναι δύο κυρίες και η μια από δεξιά μαλώνει ένα μωράκι που βρίσκεται ανάμεσά τους.
Γιατί το μαλώνει μάλλον;
Μάλλον επειδή δε πίνει το γάλα του.
Ωραία. Και η διαφορά;
Τώρα μαλώνει η –η άλλη κυρία το –το μωρό. Και έχουν αλλάξει πλευρές.
Ωραία. Σε αυτήν τι βλέπουμε;
Βλέπω έναν άντρα που κοιτάζει ένα πουλάκι που έχει βγει από το φωτοτυπικό.
Και η διαφορά;
Τώρα το –τα χαρτιά που βγαίνουν από το φωτιπι- φωτοτυπικό κοιτάζει ο άνθρωπος.
Και το πουλάκι;
Το πουλάκι έχει πετάξει από πίσω του, δεξιά.
Και εδώ;
Βλέπω μια κυρία που κυνηγάει ένα πράσινο αυτοκίνητο και ένα άλλο- ένα άνθρωπο από πίσω της στα αριστερά που κρατάει ένα χαρτί στο χέρι του.
Ωραία. Και η διαφορά;
Τώρα είναι το παιδί που κυνηγάει το –το αυτοκίνητο.
Και η κυρία
Η κυρία είναι από πίσω –δεν ξέρω φωνάζει τι κάνει εκεί πέρα, είναι από πίσω δεξιά.
Ωραία. Και αυτό ήταν Κατρίνα, τελειώσαμε και μ' αυτό. Ευχαριστώ πολύ.

5. Production data

Table 1: Greek native production: numbers of target utterances in three different conditions.

		SVO	SclVO	SVSO	OclVS	VSO	clVSO	VOS	clVOS	OSV	*total*
	O-different	125		1	1	38	2				*167*
Object	O-animate	101	1	1	12	29	5	3			*152*
same	O-inanimate	106		1	8	36	9	5	1	1	*167*
	total	*332*	*1*	*3*	*21*	*103*	*16*	*8*	*1*	*1*	***486***

Table 2: Greek native production of target WO utterances: numbers of the different Word Orders that were used with the verb 'hold' in the different Object conditions.

hold	**SVO**	**OclVS**	**VSO**	**ClVSO**	**VOS**	*total*
O-dif	9	1	4	1	1	*16*
O-anim	4	8	1	0	1	*14*
O-inan	9	3	2	1	0	*15*
total	*22*	*12*	*7*	*2*	*2*	*45*

Table 3: Greek native production of target WO utterances: numbers of the different Word Orders that were used with the verb 'pull' in the different Object conditions.

pull	**SVO**	**OclVS**	**VSO**	**ClVSO**	**VOS**	*total*
O-dif	8	0	3	0	0	*11*
O-anim	3	0	4	0	0	*7*
O-inan	7	2	5	2	2	*18*
total	*18*	*2*	*12*	*2*	*2*	*36*

Table 4: Greek native production of target WO utterances: numbers of the different Word Orders that were used with the verb 'greet' in the different Object conditions

greet	**SVO**	**SVSO**	**OclVS**	**VSO**	**clVSO**	*total*
O-dif	8	1	0	6	0	*15*
O-anim	10	0	0	3	1	*14*
O-inan	7	0	1	6	0	*14*
total	*25*	*1*	*1*	*15*	*1*	*43*

Table 5: Albanian elementary production from the description of the difference: numbers of all responses with the 12 experimental verbs.

	S(cl)VO	**OVS**	**OclVS**	**VSO**	**clVSO**	**VOS**	*total*	**other**	*total*
love	37						*37*	17	54
touch	41		1	1			*43*	11	54
point	36			1	1		*38*	16	54
kick	35			2			*37*	17	54
look	39	1		1			*41*	13	54
hold	33	2	4	1			*40*	14	54
chase	34		1			1	*36*	18	54
scold	22	1					*23*	31	54
pull	39				1		*40*	14	54
kiss	34						*34*	20	54
call	26			4			*30*	24	54
greet	38	1		2			*41*	13	54
total	*414*	*5*	*6*	*12*	*2*	*1*	**440**	**208**	**648**

Table 6: Albanian advanced production from the description of the difference: numbers of target WO utterances produced with the 12 verbs.

	SVO	**SclVO**	**OclVS**	**VSO**	**clVSO**	**VOS**	**clVOS**	*total*	**other**	*total*
love	32	1		3				*36*	18	*54*
touch	37		2	1				*40*	13	*53*
point	38		1	5				*44*	10	*54*
kick	31		2	7				*40*	14	*54*
look	31	1	1	5		1		*39*	15	*54*
hold	29		8	4	1			*42*	12	*54*
chase	36		1	4				*41*	13	*54*
scold	28		1	6				*35*	19	*54*
pull	29		1	7			1	*38*	16	*54*
kiss	26			6				*32*	22	*54*
call	32			8				*40*	14	*54*
greet	31	1		6				*38*	16	*54*
total	*380*	*3*	*17*	*62*	*1*	*1*	*1*	***465***	***182***	***647***

Table 7: English advanced production from the description of the difference: numbers of target WO utterances with each experimental verb.

		SVO	**SclVO**	**OclVS**	**VSO**	**VOS**	**SOV**	*total*	other	*total*
1	*love*	33			2			*35*	19	*54*
2	*touch*	40		1		1		*42*	12	*54*
3	*point*	43				2		*46*	8	*54*
4	*kick*	37		1	3	1		*42*	12	*54*
5	*look*	34			3			*37*	17	*54*
6	*hold*	44		2	2	1		*49*	5	*54*
7	*chase*	35	1		4	1		*41*	13	*54*
8	*scold*	34			3	1	1	*39*	15	*54*
9	*pull*	38		1	7	1		*47*	7	*54*
10	*kiss*	35	1		3	1	1	*41*	13	*54*
11	*call*	29			4			*33*	21	*54*
12	*greet*	32		1	2			*35*	19	*54*
	total	*434*	*2*	*6*	*33*	*9*	*2*	*486*	*161*	*647*

APPENDIX IV:

ACCEPTABILITY JUDGMENT EXPERIMENT

1. Materials

Verbs
(verbs in bold letters were not used in the comprehension/production experiments)

1. akui (listens)
2. akumpai (touches)
3. dhihni (shows/points)
4. **ehi (has)**
5. kitazi (looks)
6. klotsai (kicks)
7. krivi (hides)
8. kinghai (chases)
9. **leroni (dirty)**
10. pirazi (teases)
11. petiheni (gets)
12. **piani (touches)**
13. travai (pulls)
14. fonazi (calls)
15. filai (kisses)
16. heretai (greets)
17. **htipai (knocks)**

V+N+N COMBINATIONS

S: animate; feminine -- O: animate; feminine
Η μαγείρισσα κοιτάει την καθαρίστρια
Την νοσοκόμα ακούει η δασκάλα
Πιάνει η κυρία την πωλήτρια
Φιλάει την κοπέλα η γιαγιά
Η φοιτήτρια την μαθήτρια χαιρετάει
Την γάτα η γυναίκα κυνηγάει.

S: animate; neuter ---- O: animate; neuter
Το κορίτσι φιλάει το αγόρι.
Το εγγόνι πιάνει το μωρό.
Χαιρετάει το παλικάρι το παιδί.
Ακούει το πουλί το σκυλί.
Το γουρούνι το πρόβατο κλωτσάει.
Το λιοντάρι το άλογο κοιτάει.

S: animate; feminine ---- O: inanimate; feminine
Η πωλήτρια έχει την φωτογραφία.
Την μπάλα πετυχαίνει η κυρία.
Χτυπάει η κοπέλα την πόρτα.
Λερώνει την εφημερίδα η μαθήτρια.
Η γιαγιά την παγίδα πιάνει.
Την τηλεόραση η γυναίκα δείχνει.

S: animate; neuter ---- O: inanimate; neuter
Το ψάρι τραβάει το αγκίστρι.
Το σκοινί ακουμπάει το λιοντάρι.
Κρύβει το παιδί το σεντόνι.
Χτυπάει το παράθυρο το μωρό.
Το αγόρι το βιβλίο πετυχαίνει.
Το φαγητό το ποντίκι πειράζει.

S: animate; feminine ---- O: inanimate; neuter
Η μητέρα πετυχαίνει το βιβλίο.
Το σεντόνι ακουμπάει η καθηγήτρια.
Κρύβει η γυναίκα το παράθυρο.
Πειράζει το φαγητό η πωλήτρια.
Η μαγείρισσα το καρότσι ακουμπάει.
Το αγκίστρι η γάτα τραβάει.

S: animate; neuter ---- O: inanimate; feminine
Το κορίτσι πιάνει την παγίδα.
Την φωτογραφία έχει το μωρό.
Χτυπάει το εγγόνι την πόρτα.
Έχει την εφημερίδα το παλικάρι.
Το παιδί την τηλεόραση κρύβει.
Την μπάλα το πουλί ακουμπάει.

S: animate; feminine ---- O: animate; neuter
Η κότα βλέπει το γουρούνι.
Το παλικάρι κυνηγάει η κοπέλα.
Ακούει η γάτα το μωρό.
Φωνάζει το αγόρι η πωλήτρια.
Η κατσίκα το άλογο κλωτσάει.
Το αγόρι η μαθήτρια φιλάει.

S: animate; neuter ---- O: animate; feminine
Το γουρούνι κλωτσάει την μαθήτρια.
Την κυρία πειράζει το λιοντάρι.
Χαιρετάει το εγγόνι την γιαγιά.
Βλέπει την γάτα το πρόβατο.
Το αγόρι την κοπέλα λερώνει.
Την καθαρίστρια το κορίτσι φωνάζει.

2. Pre-tests

1.κοιταει	μητερα	√	
	τουριστρια		
2.ακουει	μαθητρια	√	
	δασκαλα		
3.πιανει	πωλητρια		
	κυρια	√	
4. φιλαει	γιαγια	√	
	κοπελα		
5. χαιρεταει	καθηγητρια		
	φοιτητρια	√	
6. κυνηγαει	γυναικα	√	
	γατα		
7. Φιλαει	μωρο		
	κοριτσι	√	
8. Δειχνει	αγορι	√	
	ποντικι		
9. Χαιρεταει	παλικαρι	√	
	παιδι		
10. Ακουει	σκυλι		
	πουλι	√	
11. Κλωτσαει	γουρουνι		
	προβατο	√	
12. Κοιταει	λιονταρι	√	
	αλογο		
13. Φωτιζει	φοιτητρια		
	λαμπα	√	
14. Πετυχαινει	κυρια		
	μπαλα	√	
15. Χτυπαει	πορτα	√	
	κοπελα		
16. Λερωνει	εφημεριδα	√	
	μαθητρια		
17. Σκεπαζει	γιαγια		
	κουβερτα	√	
18. Δειχνει	τηλεοραση	√	
	τουριστρια		
19. Τραβαει	καροτσι		
	αλογο	√	
20. Ακουμπαει	σκοινι		
	λιονταρι	√	

21.κρυβει	παιδι	√	
	σεντονι		
22. Πετυχαινει	βιβλιο	√	
	αγορι		
23. Χτυπαει	μωρο		
	παραθυρο	√	
24. Πειραζει	φαγητο		
	ποντικι	√	
25. Πιανει	πορτα		
	κοριτσι	√	
26. Φωτιζει	εγγονι		
	λαμπα	√	
27. Λερωνει	σκυλι	√	
	εφημεριδα		
28. Σκεπαζει	κουβερτα	√	
	παλικαρι		
29. Κρυβει	τηλεοραση	√	
	παιδι		
30. Ακουμπαει	πουλι		
	μπαλα	√	
31. Τραβαει	σκοινι		
	γατα	√	
32. Ακουμπαει	καθηγητρια	√	
	καροτσι		
33. Πειραζει	πωλητρια		
	φαγητο	√	
34. Σκεπαζει	γυναικα		
	σεντονι	√	
35. Χτυπαει	παραθυρο	√	
	δασκαλα		
36. Πετυχαινει	βιβλιο	√	
	μητερα		
37. Κλωτσαει	μητερα		
	αλογο	√	
38. Κυνηγαει	παλικαρι	√	
	κοπελα		
39. Ακουει	μωρο	√	
	γυναικα		
40. Φωναζει	αγορι	√	
	πωλητρια		

41. Βλεπει	γατα	√	
	ποντικι		
42. Φιλαει	καθηγητρια	√	
	κοριτσι		
43. Κλωτσαει	γουρουνι	√	
	μαθητρια		
44. Πειραζει	κυρια	√	
	λιονταρι		
45. Χαιρεταει	εγγονι	√	
	γιαγια		
46. Βλεπει	προβατο	√	
	γατα		
47. Λερωνει	δασκαλα		
	αγορι	√	
48. Φωναζει	κοριτσι	√	
	κυρια		

ONOMA:
ΔΟΡΑ

1.κοιταει	μαγειρισσα	Υ
	καθαριστρια	Α

2.ακουει	νοσοκομα	Α
	δασκαλα	Υ

3.εχει	φωτογραφια	Α
	πωλητρια	Υ

4. Πιανει	γιαγια	Α
	παγιδα	Υ

5. Εχει	παλικαρι	Υ
	εφημεριδα	Α

6.χτυπαει	αυτοκινητο	Υ
	δασκαλα	Α

7. Φιλαει	αγορι	Υ
	κοριτσι	Α

8. Χαιρεταει	μαθητρια	Υ
	φοιτητρια	Α

9. Δειχνει	γυναικα	Α
	τηλεοραση	Υ

10. Κρυβει	παραθυρο	Α
	γυναικα	Υ

11. Ακουμπαει	κοτα	Υ
	λουλουδι	Α

12. Τραβαει	αγκιστρι	Α
	γατα	Υ

13. Χτυπαει	σκυλι	Α
	πορτα	Υ

14. Τραβαει	ψαρι	Α
	αγκιστρι	Α

15. Εχει	μωρο	Υ
	φωτογραφια	Α

16. Πιανει	μωρο	Α
	εγγονι	Υ

18. Πιανει	κοριτσι	Α
	παγιδα	Υ

19. Βλεπει	κοτα	Υ
	γουρουνι	Α

20. Κλωτσαει	κατσικα	Α
	αλογο	Υ

21. Φιλαει	μαθητρια	Α
	αγορι	Υ

21. Φωναζει	μωρο	Υ
	μητερα	Α

Όνομα : Λίζια Παπαμίχου

3. Instructions

Sentence acceptability

Aim: the experiment in which you are going to participate investigates the linguistic impressions.
Structure of the experiment: we will start with a practice session during which you will have to judge the length of 10 lines, in order to get an idea of the answers we want from you. The practice will continue with 10 sentences. Then we will present you the sentences of the experiment.

Practice: how long is a line? In the center of the computer screen we first see a star for a few seconds. Then a line appears. You have to say whether you consider this line big or small (relative to the possible lines that may appear) by giving it a 'mark'. You can give a mark to a line using the numbers on the computer's keyboard. When you have given a mark to the first line, and you are ready to see the next one, you can press the 'return' key, and a new line will appear.
The first line will be your reference line. Allow a mark, having in mind that some of the lines that will follow will be bigger and some will be smaller than this.
After the first line, you will judge each of the lines that you will see in a way that the mark you give represents its length relatively to the line of reference (= the first line).
The bigger a line you think it is –compared to the line of reference- the higher the mark that you give. And vice versa: the smaller a line you think it is compared to the first line, the smaller the mark you give. If you think, for example, that a line is twice as big as the first line, you will have to give a mark that will be twice as big as the one you had given to the line of reference (=first line).

Example: Let's say that the first line you see is this one

---

you could mark it with 13. If the next line you would see was like the following

---

you would probably want to give this second line 26. If the next line was like this

---

perhaps you would think you could mark it with 6.
There is no limit to the numbers you can give. You can give decimals (e.g. 60.5) or not. You cannot use negative numbers (e.g. –1) or zero (0). You can, though, use 0.1, for example. Try not to have a limited scale from 1 to 10.

Do you have any questions? If not, ask from the researcher to start the practice with the lines.

Practice: how acceptable is a sentence? Now you have another practice session, but this time you are going to judge sentences, not lines.
The purpose of this exercise is to estimate how acceptable some Greek sentences are. You will see sentences that differ from each other. Some of them will seem okay, but others won't. What we are interested to know is not what you think about the meaning of the sentences but what you think about their grammar.
You can accurately judge if a sentence is more or less acceptable in the same way you've been judging the length of the lines, that is, by giving them a number. First you see the sentence and then you give it a mark. The sentence will remain on the screen until you press the 'return' button.
As you did with the lines, you can choose a number for the first sentence. You will give each of the sentences that will follow a number that will show whether the sentence is more or less acceptable compared to the first one. If, for example, the first sentence was this one

Μαρία μουσακά φάει έχει

you could give it the number '5'. If the next sentence was the following

Ο Πέτρος έχει την εφημερίδα στο κρεβάτι

you could think that this sentence is 20 times better than the first one and mark it with 100. If, on the contrary, you thought that this sentence is half acceptable than the first one, you could give it 2.5.
Try not to limit your answers in a small scale. Remember that you cannot use zero and negative numbers. If you have forgotten the first sentence don't worry: if each of the numbers that you have used before was relative to the first one, then you can judge a new sentence relative to any of the previous sentences.
There are no right answers: any answer that you think is good is a good answer. Neither is there a right number that can be used as a point of reference. We are interested to know your first impression, so try not to think about each sentence. And remember: you are not judging the meaning but the grammar of each sentence!
If after the practice you don't feel familiarized with the process, ask the researcher to repeat the practice session.

Do you have any questions? Ask the researcher!
If not, press the space bar to start the practice session.

4. Descriptive Statistics

4.1: Greek native: acceptability judgments

	Mean	Std.D.	SE
SVOFFA	4.177	.655	.154
SVOFFI	3.929	.844	.199
SVOFNA	4.138	.709	.167
SVOFNI	4.076	.705	.166
SVONFA	4.224	.645	.152
SVONFI	4.089	.665	.157
SVONNA	4.115	.641	.151
SVONNI	3.936	.793	.187
OVSFFA	4.009	.645	.152
OVSFFI	3.813	.669	.158
OVSFNA	3.723	.738	.174
OVSFNI	3.496	.850	.200
OVSNFA	3.698	.929	.219
OVSNFI	3.496	1.009	.238
OVSNNA	4.081	.658	.155
OVSNNI	3.454	1.271	.299
VSOFFA	3.902	.729	.172
VSOFFI	3.567	1.216	.287
VSOFNA	3.787	1.167	.275
VSOFNI	3.828	.815	.192
VSONFA	3.962	.599	.141
VSONFI	3.817	.697	.164
VSONNA	3.786	.987	.233
VSONNI	3.609	.833	.196
VOSFFA	3.932	.661	.156
VOSFFI	3.983	.634	.150
VOSFNA	3.914	.661	.156
VOSFNI	3.761	.592	.140
VOSNFA	3.887	.626	.148
VOSNFI	3.757	.820	.193
VOSNNA	3.914	.696	.164
VOSNNI	3.261	1.154	.272
SOVFFA	3.751	.780	.184
SOVFFI	3.739	.728	.171
SOVFNA	3.770	.791	.186
SOVFNI	3.711	.905	.213
SOVNFA	3.549	.950	.224
SOVNFI	3.667	.729	.172
SOVNNA	3.662	.621	.146
SOVNNI	3.529	.866	.204
OSVFFA	3.547	.722	.170
OSVFFI	3.592	.738	.174
OSVFNA	3.230	1.167	.275
OSVFNI	3.014	1.199	.283
OSVNFA	3.606	.813	.192
OSVNFI	3.365	1.182	.279
OSVNNA	3.761	.862	.203
OSVNNI	2.932	1.376	.324

4.2: Greek native: RTs

	Mean	Std.D.	SE
SVOFFA	8.070	.356	.084
SVOFFI	8.197	.567	.134
SVOFNA	8.222	.563	.133
SVOFNI	8.121	.492	.116
SVONFA	8.172	.581	.137
SVONFI	8.012	.499	.118
SVONNA	8.169	.530	.125
SVONNI	8.192	.443	.104
OVSFFA	8.362	.498	.117
OVSFFI	8.218	.578	.136
OVSFNA	8.483	.527	.124
OVSFNI	8.603	.467	.110
OVSNFA	8.403	.474	.112
OVSNFI	8.261	.539	.127
OVSNNA	8.163	.451	.106
OVSNNI	8.533	.523	.123
VSOFFA	8.385	.542	.128
VSOFFI	8.230	.604	.142
VSOFNA	8.199	.423	.100
VSOFNI	8.283	.437	.103
VSONFA	8.202	.333	.078
VSONFI	8.230	.473	.112
VSONNA	8.357	.399	.094
VSONNI	8.240	.533	.126
VOSFFA	8.226	.400	.094
VOSFFI	8.386	.417	.098
VOSFNA	8.322	.733	.173
VOSFNI	8.382	.442	.104
VOSNFA	8.214	.420	.099
VOSNFI	8.281	.550	.130
VOSNNA	8.276	.413	.097
VOSNNI	8.324	.397	.094
SOVFFA	8.261	.453	.107
SOVFFI	8.255	.504	.119
SOVFNA	8.381	.518	.122
SOVFNI	8.417	.610	.144
SOVNFA	8.279	.383	.090
SOVNFI	8.171	.435	.103
SOVNNA	8.383	.575	.135
SOVNNI	8.404	.485	.114
OSVFFA	8.528	.630	.148
OSVFFI	8.217	.468	.110
OSVFNA	8.387	.511	.120
OSVFNI	8.539	.456	.107
OSVNFA	8.346	.449	.106
OSVNFI	8.181	.588	.139
OSVNNA	8.164	.375	.088
OSVNNI	8.345	.504	.119

4.3. Albanian elementary: acceptability judgments

	Mean	Std.D.	SE
SVOFFA	4.143	.537	.126
SVOFFI	3.781	1.297	.306
SVOFNA	4.052	.902	.213
SVOFNI	3.390	1.417	.334
SVONFA	3.769	1.095	.258
SVONFI	3.971	.813	.192
SVONNA	4.064	.687	.162
SVONNI	3.999	.553	.130
OVSFFA	3.252	1.249	.294
OVSFFI	3.153	1.210	.285
OVSFNA	3.098	1.471	.347
OVSFNI	2.836	1.388	.327
OVSNFA	3.519	1.285	.303
OVSNFI	3.008	1.488	.351
OVSNNA	3.753	1.124	.265
OVSNNI	3.333	1.263	.298
VSOFFA	3.621	1.140	.269
VSOFFI	3.434	1.174	.277
VSOFNA	3.387	1.278	.301
VSOFNI	3.304	1.191	.281
VSONFA	3.036	1.170	.276
VSONFI	3.489	.883	.208
VSONNA	3.556	.958	.226
VSONNI	3.005	1.319	.311
VOSFFA	3.066	1.318	.311
VOSFFI	3.457	1.372	.323
VOSFNA	3.559	.815	.192
VOSFNI	2.771	1.514	.357
VOSNFA	3.264	1.421	.335
VOSNFI	3.278	1.428	.336
VOSNNA	3.490	1.267	.299
VOSNNI	3.428	.991	.234
SOVFFA	3.272	1.883	.444
SOVFFI	2.938	1.473	.347
SOVFNA	3.442	1.185	.279
SOVFNI	2.913	1.342	.316
SOVNFA	2.780	1.439	.339
SOVNFI	3.311	1.134	.267
SOVNNA	3.271	1.233	.291
SOVNNI	2.289	2.523	.595
OSVFFA	3.379	1.228	.289
OSVFFI	2.347	2.892	.682
OSVFNA	3.452	1.213	.286
OSVFNI	2.870	1.352	.319
OSVNFA	2.469	1.537	.362
OSVNFI	2.934	1.171	.276
OSVNNA	3.293	1.030	.243
OSVNNI	3.236	1.163	.274

4.4. Albanian elementary: RTs

	Mean	Std.D.	SE
SVOFFA	8.938	.483	.114
SVOFFI	8.937	.608	.143
SVOFNA	8.797	.490	.115
SVOFNI	9.028	.619	.146
SVONFA	9.175	.632	.149
SVONFI	8.946	.450	.106
SVONNA	8.934	.366	.086
SVONNI	8.986	.523	.123
OVSFFA	9.178	.644	.152
OVSFFI	9.067	.632	.149
OVSFNA	8.992	.483	.114
OVSFNI	9.197	.429	.101
OVSNFA	9.018	.458	.108
OVSNFI	9.258	.716	.169
OVSNNA	9.138	.637	.150
OVSNNI	9.048	.404	.095
VSOFFA	9.106	.549	.129
VSOFFI	9.057	.535	.126
VSOFNA	8.991	.585	.138
VSOFNI	9.125	.456	.107
VSONFA	9.182	.603	.142
VSONFI	9.236	.643	.152
VSONNA	9.038	.634	.149
VSONNI	9.124	.514	.121
VOSFFA	9.016	.710	.167
VOSFFI	9.064	.530	.125
VOSFNA	8.994	.623	.147
VOSFNI	9.042	.524	.124
VOSNFA	9.056	.519	.122
VOSNFI	9.027	.602	.142
VOSNNA	9.162	.604	.142
VOSNNI	8.926	.571	.135
SOVFFA	8.954	.433	.102
SOVFFI	8.810	.472	.111
SOVFNA	9.004	.458	.108
SOVFNI	9.013	.606	.143
SOVNFA	9.197	.448	.106
SOVNFI	9.012	.635	.150
SOVNNA	9.007	.563	.133
SOVNNI	8.880	.509	.120
OSVFFA	8.996	.528	.124
OSVFFI	8.992	.681	.160
OSVFNA	9.086	.598	.141
OSVFNI	9.137	.761	.179
OSVNFA	9.194	.579	.136
OSVNFI	9.119	.671	.158
OSVNNA	9.186	.627	.148
OSVNNI	8.888	.504	.119

4.5. Albanian advanced: acceptability judgments

	Mean	Std.D.	SE
SVOFFA	3.912	1.153	.272
SVOFFI	4.117	.574	.135
SVOFNA	3.836	1.131	.267
SVOFNI	3.281	1.450	.342
SVONFA	3.710	1.254	.295
SVONFI	3.999	1.098	.259
SVONNA	3.876	1.234	.291
SVONNI	4.014	.576	.136
OVSFFA	3.470	1.072	.253
OVSFFI	3.636	.844	.199
OVSFNA	2.697	1.653	.390
OVSFNI	3.031	1.063	.250
OVSNFA	3.448	1.243	.293
OVSNFI	3.517	.962	.227
OVSNNA	3.839	1.191	.281
OVSNNI	3.643	1.329	.313
VSOFFA	3.852	.773	.182
VSOFFI	3.351	1.494	.352
VSOFNA	3.470	1.798	.424
VSOFNI	3.396	1.137	.268
VSONFA	3.107	1.810	.427
VSONFI	3.426	1.388	.327
VSONNA	3.522	1.160	.273
VSONNI	3.194	1.160	.273
VOSFFA	3.963	.793	.187
VOSFFI	3.497	1.324	.312
VOSFNA	3.769	1.145	.270
VOSFNI	3.326	1.198	.282
VOSNFA	3.428	1.202	.283
VOSNFI	3.504	1.239	.292
VOSNNA	3.275	1.347	.317
VOSNNI	3.545	1.119	.264
SOVFFA	3.667	.868	.205
SOVFFI	3.414	1.102	.260
SOVFNA	3.379	1.385	.326
SOVFNI	3.109	1.100	.259
SOVNFA	3.226	1.657	.391
SOVNFI	3.384	1.136	.268
SOVNNA	2.885	1.632	.385
SOVNNI	2.934	1.807	.426
OSVFFA	3.613	.955	.225
OSVFFI	2.742	1.240	.292
OSVFNA	2.782	1.513	.357
OSVFNI	2.676	1.539	.363
OSVNFA	2.826	1.563	.368
OSVNFI	3.190	1.097	.259
OSVNNA	3.338	1.291	.304
OSVNNI	2.695	1.751	.413

4.6. Albanian advanced: RTs

	Mean	Std.D.	SE
SVOFFA	8.701	.463	.109
SVOFFI	8.546	.600	.141
SVOFNA	8.643	.544	.128
SVOFNI	8.866	.527	.124
SVONFA	8.531	.444	.105
SVONFI	8.623	.444	.105
SVONNA	8.706	.548	.129
SVONNI	8.684	.473	.112
OVSFFA	8.797	.425	.100
OVSFFI	8.724	.411	.097
OVSFNA	8.577	.500	.118
OVSFNI	8.665	.456	.107
OVSNFA	8.791	.526	.124
OVSNFI	8.842	.631	.149
OVSNNA	8.604	.575	.136
OVSNNI	8.778	.410	.097
VSOFFA	8.764	.374	.088
VSOFFI	8.721	.527	.124
VSOFNA	8.691	.392	.093
VSOFNI	8.741	.495	.117
VSONFA	8.752	.453	.107
VSONFI	8.627	.480	.113
VSONNA	8.612	.416	.098
VSONNI	8.597	.427	.101
VOSFFA	8.829	.345	.081
VOSFFI	8.814	.472	.111
VOSFNA	8.524	.370	.087
VOSFNI	8.813	.540	.127
VOSNFA	8.716	.351	.083
VOSNFI	8.821	.526	.124
VOSNNA	8.704	.502	.118
VOSNNI	8.570	.428	.101
SOVFFA	8.841	.545	.128
SOVFFI	8.689	.513	.121
SOVFNA	8.842	.476	.112
SOVFNI	8.684	.518	.122
SOVNFA	8.736	.506	.119
SOVNFI	8.686	.509	.120
SOVNNA	8.680	.592	.140
SOVNNI	8.636	.482	.114
OSVFFA	8.783	.440	.104
OSVFFI	8.642	.431	.102
OSVFNA	8.652	.411	.097
OSVFNI	8.598	.325	.077
OSVNFA	8.729	.380	.090
OSVNFI	8.597	.522	.123
OSVNNA	8.740	.516	.122
OSVNNI	8.679	.537	.127

4.7. English elementary: acceptability judgments

	Mean	Std.D.	SE
SVOFFA	3.733	.823	.194
SVOFFI	3.752	.652	.154
SVOFNA	3.662	1.013	.239
SVOFNI	3.841	.691	.163
SVONFA	3.582	1.136	.268
SVONFI	3.762	.716	.169
SVONNA	3.522	1.073	.253
SVONNI	3.753	.712	.168
OVSFFA	3.376	.914	.215
OVSFFI	3.282	.854	.201
OVSFNA	3.217	.968	.228
OVSFNI	3.183	1.051	.248
OVSNFA	3.281	.968	.228
OVSNFI	3.591	.907	.214
OVSNNA	3.740	.675	.159
OVSNNI	3.428	1.001	.236
VSOFFA	3.542	1.011	.238
VSOFFI	3.673	.804	.189
VSOFNA	3.376	1.041	.245
VSOFNI	3.396	.952	.224
VSONFA	3.559	1.033	.244
VSONFI	3.374	.896	.211
VSONNA	3.338	1.040	.245
VSONNI	3.164	1.043	.246
VOSFFA	3.600	.877	.207
VOSFFI	3.178	1.301	.307
VOSFNA	3.456	.860	.203
VOSFNI	3.196	.974	.230
VOSNFA	3.511	.911	.215
VOSNFI	3.397	.876	.207
VOSNNA	3.324	1.031	.243
VOSNNI	3.374	.888	.209
SOVFFA	3.283	.970	.229
SOVFFI	3.338	1.060	.250
SOVFNA	3.153	1.137	.268
SOVFNI	3.252	1.063	.251
SOVNFA	3.299	1.006	.237
SOVNFI	3.222	1.020	.240
SOVNNA	2.864	1.090	.257
SOVNNI	3.247	.984	.232
OSVFFA	3.131	1.254	.296
OSVFFI	2.737	1.489	.351
OSVFNA	3.120	1.170	.276
OSVFNI	3.108	.957	.226
OSVNFA	3.058	.943	.222
OSVNFI	3.158	.905	.213
OSVNNA	3.134	1.152	.271
OSVNNI	3.069	.993	.234

4.8. English elementary: RTs

	Mean	Std.D.	SE
SVOFFA	9.144	.566	.133
SVOFFI	8.809	.506	.119
SVOFNA	8.902	.423	.100
SVOFNI	8.764	.508	.120
SVONFA	8.844	.588	.139
SVONFI	8.805	.459	.108
SVONNA	8.987	.435	.103
SVONNI	8.796	.522	.123
OVSFFA	8.886	.561	.132
OVSFFI	8.909	.450	.106
OVSFNA	8.960	.479	.113
OVSFNI	8.958	.513	.121
OVSNFA	8.868	.502	.118
OVSNFI	8.742	.357	.084
OVSNNA	8.931	.533	.126
OVSNNI	9.227	.378	.089
VSOFFA	8.923	.492	.116
VSOFFI	9.026	.425	.100
VSOFNA	8.941	.576	.136
VSOFNI	8.853	.525	.124
VSONFA	8.992	.371	.087
VSONFI	8.909	.332	.078
VSONNA	8.957	.616	.145
VSONNI	8.982	.345	.081
VOSFFA	8.863	.366	.086
VOSFFI	9.117	.442	.104
VOSFNA	8.871	.463	.109
VOSFNI	8.777	.528	.124
VOSNFA	8.897	.403	.095
VOSNFI	8.943	.490	.115
VOSNNA	8.875	.643	.152
VOSNNI	9.031	.399	.094
SOVFFA	8.966	.545	.128
SOVFFI	9.001	.495	.117
SOVFNA	8.869	.463	.109
SOVFNI	8.894	.492	.116
SOVNFA	8.769	.313	.074
SOVNFI	8.876	.527	.124
SOVNNA	8.782	.497	.117
SOVNNI	8.869	.531	.125
OSVFFA	8.792	.464	.109
OSVFFI	8.932	.332	.078
OSVFNA	8.808	.389	.092
OSVFNI	8.828	.423	.100
OSVNFA	8.776	.381	.090
OSVNFI	8.838	.646	.152
OSVNNA	8.840	.455	.107
OSVNNI	8.902	.489	.115

4.9. English advanced: acceptability judgments

	Mean	Std.D.	SE
SVOFFA	4.068	.749	.176
SVOFFI	3.823	.986	.232
SVOFNA	3.977	.793	.187
SVOFNI	3.900	.794	.187
SVONFA	3.907	.857	.202
SVONFI	3.854	1.093	.258
SVONNA	3.956	.844	.199
SVONNI	3.962	.831	.196
OVSFFA	3.776	.849	.200
OVSFFI	3.717	.898	.212
OVSFNA	3.791	1.034	.244
OVSFNI	3.765	.832	.196
OVSNFA	3.917	.829	.195
OVSNFI	3.534	1.046	.247
OVSNNA	3.957	.789	.186
OVSNNI	3.508	1.348	.318
VSOFFA	3.673	.946	.223
VSOFFI	3.714	.955	.225
VSOFNA	3.712	1.008	.238
VSOFNI	3.426	1.084	.255
VSONFA	3.744	.931	.219
VSONFI	3.774	.891	.210
VSONNA	3.519	1.116	.263
VSONNI	3.684	.938	.221
VOSFFA	3.683	1.066	.251
VOSFFI	3.849	.871	.205
VOSFNA	3.771	.879	.207
VOSFNI	3.651	1.087	.256
VOSNFA	3.747	.859	.202
VOSNFI	3.463	1.249	.294
VOSNNA	3.789	.724	.171
VOSNNI	3.693	.759	.179
SOVFFA	3.534	.929	.219
SOVFFI	3.708	.858	.202
SOVFNA	3.610	1.048	.247
SOVFNI	3.493	1.187	.280
SOVNFA	3.583	1.091	.257
SOVNFI	3.353	1.372	.323
SOVNNA	3.726	.934	.220
SOVNNI	3.510	.915	.216
OSVFFA	3.522	.969	.228
OSVFFI	3.284	.997	.235
OSVFNA	3.186	1.004	.237
OSVFNI	3.246	.906	.214
OSVNFA	3.602	.997	.235
OSVNFI	3.273	1.233	.291
OSVNNA	3.574	.919	.217
OSVNNI	3.543	1.010	.238

4.10 English advanced: RTs

	Mean	Std.D.	SE
SVOFFA	8.606	.364	.086
SVOFFI	8.777	.640	.151
SVOFNA	8.573	.654	.154
SVOFNI	8.911	.601	.142
SVONFA	8.697	.514	.121
SVONFI	8.446	.380	.090
SVONNA	8.537	.582	.137
SVONNI	8.542	.520	.123
OVSFFA	8.861	.380	.090
OVSFFI	8.816	.566	.133
OVSFNA	8.631	.521	.123
OVSFNI	8.867	.375	.088
OVSNFA	8.620	.381	.090
OVSNFI	8.767	.450	.106
OVSNNA	8.481	.492	.116
OVSNNI	8.769	.565	.133
VSOFFA	8.752	.402	.095
VSOFFI	8.803	.468	.110
VSOFNA	8.542	.529	.125
VSOFNI	8.656	.482	.114
VSONFA	8.886	.426	.100
VSONFI	8.618	.401	.094
VSONNA	8.758	.614	.145
VSONNI	8.734	.531	.125
VOSFFA	8.564	.435	.103
VOSFFI	8.627	.746	.176
VOSFNA	8.606	.462	.109
VOSFNI	8.759	.490	.116
VOSNFA	8.580	.560	.132
VOSNFI	8.547	.482	.114
VOSNNA	8.571	.553	.130
VOSNNI	8.789	.674	.159
SOVFFA	8.576	.463	.109
SOVFFI	8.619	.410	.097
SOVFNA	8.599	.432	.102
SOVFNI	8.714	.566	.133
SOVNFA	8.554	.418	.098
SOVNFI	8.822	.607	.143
SOVNNA	8.683	.499	.118
SOVNNI	8.695	.487	.115
OSVFFA	8.861	.543	.128
OSVFFI	8.555	.398	.094
OSVFNA	8.748	.585	.138
OSVFNI	8.867	.641	.151
OSVNFA	8.687	.401	.094
OSVNFI	8.604	.473	.111
OSVNNA	8.598	.395	.093
OSVNNI	8.608	.415	.098

4.11. Difference from the Greek: acceptability

	Mean	Std.D.	SE
SVOFFA	-.213	1.043	.123
SVOFFI	-.061	1.155	.136
SVOFNA	-.256	1.141	.134
SVOFNI	-.473	1.325	.156
SVONFA	-.482	1.302	.153
SVONFI	-.193	1.165	.137
SVONNA	-.261	1.210	.143
SVONNI	-.003	1.037	.122
OVSFFA	-.541	1.288	.152
OVSFFI	-.366	1.214	.143
OVSFNA	-.523	1.659	.195
OVSFNI	-.292	1.482	.175
OVSNFA	-.156	1.439	.170
OVSNFI	-.083	1.542	.182
OVSNNA	-.259	1.140	.134
OVSNNI	.024	1.706	.201
VSOFFA	-.230	1.214	.143
VSOFFI	-.024	1.690	.199
VSOFNA	-.301	1.825	.215
VSOFNI	-.448	1.397	.165
VSONFA	-.601	1.441	.170
VSONFI	-.301	1.298	.153
VSONNA	-.302	1.538	.181
VSONNI	-.347	1.467	.173
VOSFFA	-.354	1.174	.138
VOSFFI	-.487	1.416	.167
VOSFNA	-.276	1.225	.144
VOSFNI	-.525	1.399	.165
VOSNFA	-.400	1.321	.156
VOSNFI	-.346	1.517	.179
VOSNNA	-.444	1.344	.158
VOSNNI	.249	1.405	.166
SOVFFA	-.312	1.565	.184
SOVFFI	-.390	1.364	.161
SOVFNA	-.374	1.508	.178
SOVFNI	-.519	1.643	.194
SOVNFA	-.327	1.712	.202
SOVNFI	-.349	1.474	.174
SOVNNA	-.476	1.347	.159
SOVNNI	-.534	1.946	.229
OSVFFA	-.136	1.398	.165
OSVFFI	-.814	2.052	.242
OSVFNA	-.095	1.766	.208
OSVFNI	-.039	1.865	.220
OSVNFA	-.617	1.722	.203
OSVNFI	-.226	1.821	.215
OSVNNA	-.426	1.416	.167
OSVNNI	.203	1.869	.220

4.12. Difference from the Greek: RTs

	Mean	Std.D.	SE
SVOSOA	.7769	.6340	.0747
SVOSOI	.5697	.8234	.0970
SVOSA	.5065	.8187	.0965
SVOSI	.7712	.7356	.0867
SVOOA	.6401	.8304	.0979
SVOOI	.6926	.6335	.0747
SVONOA	.6221	.7588	.0894
SVONOI	.5601	.6956	.0820
OVSSOA	.5683	.6597	.0777
OVSSOI	.6607	.7415	.0874
OVSSA	.3072	.7319	.0863
OVSSI	.3192	.6921	.0816
OVSOA	.4208	.6293	.0742
OVSOI	.6417	.8017	.0945
OVSNOA	.6251	.7745	.0913
OVSNNI	.4231	.6926	.0816
VSOFFA	.5012	.7248	.0854
VSOFFI	.6717	.7877	.0928
VSOFNA	.5921	.7426	.0875
VSOFNI	.5603	.7109	.0838
VSONFA	.7508	.5856	.0690
VSONFI	.6176	.6765	.0797
VSONNA	.4839	.6344	.0748
VSONNI	.6192	.7198	.0848
VOSFFA	.5925	.6554	.0772
VOSFFI	.5201	.7369	.0868
VOSFNA	.4269	.9153	.1079
VOSFNI	.4660	.6782	.0799
VOSNFA	.5981	.6705	.0790
VOSNFI	.5532	.7971	.0939
VOSNNA	.5522	.7141	.0842
VOSNNI	.5050	.6559	.0773
SOVFFA	.5736	.7082	.0835
SOVFFI	.5250	.6893	.0812
SOVFNA	.4474	.6830	.0805
SOVFNI	.4090	.7957	.0938
SOVNFA	.5351	.6250	.0737
SOVNFI	.6776	.7295	.0860
SOVNNA	.4053	.8196	.0966
SOVNNI	.3661	.7124	.0840
OSVFFA	.3296	.7608	.0897
OSVFFI	.5635	.6658	.0785
OSVFNA	.4367	.6856	.0808
OSVFNI	.3181	.7041	.0830
OSVNFA	.5003	.6436	.0758
OSVNFI	.6092	.8828	.1040
OSVNNA	.6771	.6751	.0796
OSVNNI	.4242	.7154	.0843